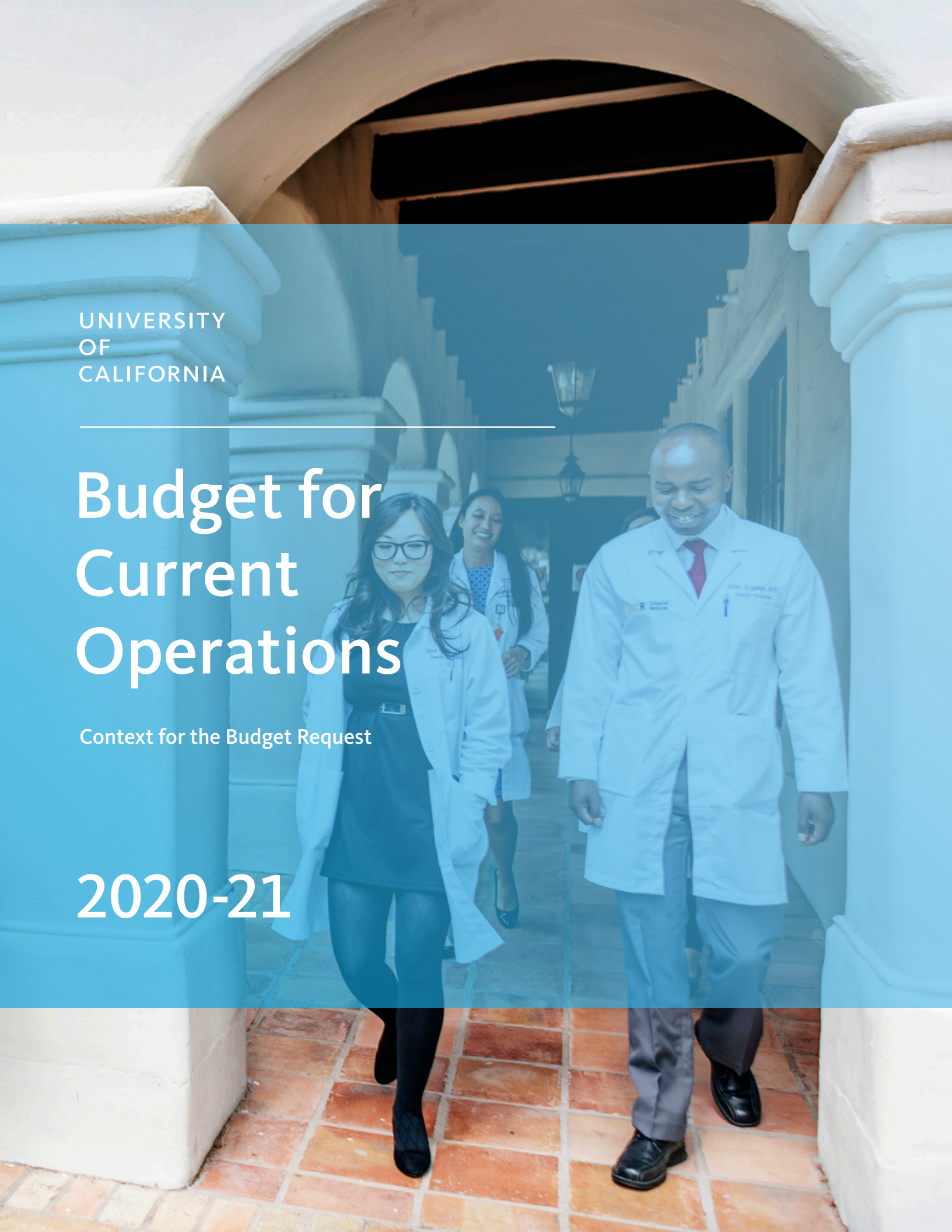


UNIVERSITY
OF
CALIFORNIA

Budget for Current Operations

Context for the Budget Request

2020-21



Foreword

The University of California was founded in 1868 as a public, State-supported land grant institution. The State Constitution establishes UC as a public trust to be administered under the authority of an independent governing board, the Regents of the University of California. The University maintains ten campuses: Berkeley, Davis, Irvine, Los Angeles, Merced, Riverside, San Diego, San Francisco, Santa Barbara, and Santa Cruz. Nine campuses offer undergraduate and graduate education; San Francisco is devoted primarily to health sciences graduate and professional instruction. The University operates teaching hospitals and clinics on the Los Angeles and San Francisco campuses, and in Sacramento, San Diego, and Orange counties. The University includes approximately 150 institutes, centers, bureaus, and research laboratories throughout the state. UC's Agricultural Field Stations, Cooperative Extension offices, and the Natural Reserve System benefit all Californians. The University also oversees the Lawrence Berkeley National Laboratory and is a partner in limited liability corporations that oversee two other Department of Energy laboratories.

ORGANIZATION OF THE 2020-21 BUDGET FOR CURRENT OPERATIONS – CONTEXT FOR THE BUDGET REQUEST

The companion to this document, the *2020-21 Summary of the Budget Request*, provides a brief overview of the major policy issues, revenue needs, and expenditure plans and objectives of the University for 2020-21. It provides explanatory detail for all aspects of the University's operating budget plan for core funds.

The first chapter, *UC's Role in the State of California*, provides an overview of the University's contributions to the state in both the education and economic sectors.

The *Sources of University Funds* chapter presents a digest of the major fund sources that constitute the University's total operating revenue.

The *Cross-Cutting Issues* chapter provides budget detail for issues that cross functional areas.



Subsequent chapters discuss specific program areas in more detail. These include chapters covering the core mission activities of instruction, research, and public service, as well as all support activities and student financial aid.

Employee compensation and rising costs of employee and retiree benefits are major drivers of the University's budget plan. These issues are discussed in the *Compensation, Employee and Retirement Benefits, and Non-Salary Cost Increases* chapter.

The *Student Tuition and Fees* chapter provides information about the University's tuition and fee policy and practices.

The *Historical Perspective* chapter provides a detailed account of the history of State funding for the University over the last several decades.

The Appendix includes various tables providing current and historical budget, enrollment, and tuition information.

A separate volume, the *2019-25 Capital Financial Plan*, provides information about the University's capital facilities needs.

Table of Contents

	Page
Foreword	3
Table of Contents	5
List of Displays	7
I. UC's Role in the State of California.....	11
II. Sources of University Funds	17
III. Cross-Cutting Issues.....	25
IV. General Campus Instruction	35
V. Health Sciences Instruction.....	53
VI. Self-Supporting Instructional Programs.....	59
VII. Research	61
VIII. Public Service.....	85
IX. Academic Support-Libraries.....	95
X. Academic Support	99
XI. Teaching Hospitals	101
XII. Student Services.....	107
XIII. Institutional Support	115
XIV. Operation and Maintenance of Plant.....	119
XV. Student Tuition and Fees	125
XVI. Student Financial Aid.....	131
XVII. Auxiliary Enterprises	141
XVIII. Provisions for Allocation.....	145
XIX. Compensation, Employee and Retirement Benefits, and Non-Salary Cost Increases.....	147
XX. Department of Energy – Office of the National Laboratories.....	157
XXI. Historical Perspective	159
 Appendices	
1. Budget for Current Operations and Extramurally Funded Operations	175
2. University of California Income and Funds Available	176
3. SAPEP State General Funds and University Funds Budgets.....	177
4. Expenditures by Fund Category, 1980-81 through 2019-20.....	178
5. Core Funds Expenditures by Fund Source, 1980-81 through 2019-20	179
6. General Campus and Health Sciences Full-Time Equivalent Student Enrollment	180
7. General Campus Full-Time Equivalent Student Enrollment	181
8. Enrollment History, 1980-81 through 2019-20	182
9. UC Mandatory Student Charge Levels	183
10. UC Average Annual Student Charges for Resident Undergraduate Students.....	184
11. UC Average Annual Student Charges for Nonresident Undergraduate Students	185
12. UC Average Annual Student Charges for Resident Graduate Academic Students	186
13. UC Average Annual Student Charges for Nonresident Graduate Academic Students	187
14. 2019-20 Total Charges for Undergraduates and Graduate Academics.....	188
15. 2019-20 Total Charges for Professional Degree Students by Program and Campus.....	189
 Index	 193

List of Displays

	Page
I. UC's Role in the State of California	
1. UC At-A-Glance.....	11
2. Earnings and Unemployment by Level of Education.....	14
II. Sources of University Funds	
1. 2019-20 Sources of Funds	17
2. 2018-19 Core Funds Expenditures by Type	18
3. 2018-19 Core Funds Expenditures by Function	18
4. State General Fund Support versus Student Tuition and Fee Revenue	18
5. Per-Student Average Expenditures for Education	19
6. 2018-19 Federal Support for UC and UC Students.....	20
7. 2019-20 State Special Funds by Revenue Source	22
8. Private Gift and Grant Support	22
9. 2018-19 Private Gift and Grant Support by Source.....	23
10. 2018-19 Private Gift and Grant Support by Purpose.....	23
III. Cross-Cutting Issues	
1. General Campus Student-Faculty Ratio	29
2. Time to Degree among Freshmen by Cohort.....	30
3. Graduation Rates by Freshman Cohort	30
4. Graduation Rates by CCC Transfer Cohort	30
IV. General Campus Instruction	
1. 2018-19 General Campus Instruction Expenditures by Fund Source	35
2. 2018-19 General Campus Instruction Expenditures by Category	35
3. California Resident Freshman and California Resident Transfer Entrants (Fall Term).....	39
4. Total General Campus Enrollment (FTE).....	39
5. Undergraduate and Graduate General Campus FTE Enrollment.....	45
6. Graduate Students as a Percentage of General Campus Enrollment	45
7. Proportion of Graduate Enrollment at UC and Comparison Institutions	45
8. Characteristics of Fall 2018 Undergraduate Students.....	47
9. Distribution of Domestic Undergraduate Students by Race/Ethnicity.....	47
10. 2018-19 Bachelor's Degrees Conferred by Broad Discipline	47
11. Characteristics of Fall 2018 Graduate Students	47
12. Distribution of Domestic Undergraduate Students by Race/Ethnicity.....	47
13. 2018-19 Graduate Degrees Conferred by Broad Discipline	47
14. UC Merced Total FTE Student Enrollment.....	49
15. Fall 2018 California Resident Undergraduates by Race/Ethnicity.....	49
16. Research Expenditures at UC Merced	50
17. Summer Term Headcount and FTE Enrollment at UC.....	51
18. Summer Enrollment Patterns of UC Undergraduates	51
V. Health Sciences Instruction	
1. 2018-19 Health Sciences Instruction Expenditures by Fund Source.....	53
2. 2018-19 Health Sciences Instruction Expenditures by Category.....	53
3. Projected California Population Growth by Age Group	54
VI. Self-Supporting Instructional Programs	
1. 2018-19 Self-Supporting Program Headcount Enrollment by Discipline	60
VII. Research	
1. UC Invention Disclosures	64
2. Impact of UC Technology Transfer.....	64
3. 2018-19 Direct Research Expenditures by Fund Source	69
4. Trends in Direct Research Expenditures by Source	70

5.	Direct Research Expenditures by Discipline	70
6.	2018-19 Federal Research Awards by Sponsor	71
7.	History of Federal Funding for UC Research	72
8.	Private Research Awards by Type of Sponsor	73
9.	Research Awards by Foreign Sponsors FY 2011-19	73
VIII.	Public Service	
1.	2018-19 Public Service Expenditures by Fund Source	85
IX.	Academic Support-Libraries	
1.	2018-19 Library Expenditures by Fund Source.....	95
2.	2018-19 Library Expenditures by Category	95
3.	UC Libraries At-A-Glance, 2018-19	96
4.	Consumer, Higher Education, and Periodical Price Increases	96
5.	Estimated Annual Savings from Library Innovations and Efficiencies	97
X.	Academic Support	
1.	2018-19 Other Academic Support Expenditures by Fund Source	99
XI.	Teaching Hospitals	
1.	UC Medical Centers At-A-Glance, 2018-19	101
2.	2018-19 Medical Center Inpatient Days by Patient Type	102
3.	2018-19 Medical Center Revenue by Source	102
XII.	Student Services	
1.	2018-19 Student Services Expenditures by Fund Source.....	107
2.	2018-19 Student Services Expenditures by Category.....	107
XIII.	Institutional Support	
1.	2018-19 Institutional Support Expenditures by Fund Source	115
2.	2018-19 Institutional Support Expenditures by Category	115
3.	Institutional Support as a Percentage of University Spending.....	116
4.	2019-20 UCOP Budget by Category	116
5.	UC Staff FTE, October 2007 and 2018.....	117
6.	General Campus Staff by Fund	117
XIV.	Operation and Maintenance of Plant	
1.	2018-19 OMP Expenditures by Fund Source	119
2.	2018-19 OMP Expenditures by Category	119
3.	All Space by Decade of Construction	120
4.	Energy Use by Building Type	123
XV.	Student Tuition and Fees	
1.	Year-to-Year Percentage Change in Mandatory Charges Over the Past Thirty Years	125
2.	2019-20 University of California and Public Comparison Institution Fees	126
3.	2019-20 Student Tuition and Fee Levels	126
4.	2018-19 Student Tuition and Fee Revenue	126
5.	2019-20 Campus-based Fee Levels.....	129
XVI.	Student Financial Aid	
1.	2017-18 Student Financial Aid by Type and Source of Funds	131
2.	Gift Aid Expenditures by Source.....	131
3.	Undergraduate Student Financial Aid At-A-Glance, 2017-18 All Year	135
4.	2016-17 Undergraduate Pell Grant Recipients	135
5.	2017-18 Net Cost of Attendance for Undergraduate Aid Recipients	135
6.	Trends in Student Work Hours, 2006-2018.....	136
7.	Graduate Student Financial Aid At-A-Glance, 2017-18.....	137
8.	2017-18 Graduate Academic Financial Support by Program Type and Aid Type	137
9.	2017-18 Graduate Professional Financial Support by Program Type and Aid Type	138
10.	Competitiveness of UC Financial Support Offers to Academic Doctoral Students	138

XVII. Auxiliary Enterprises	
1. 2018-19 Auxiliary Enterprises Expenditures by Service Type	141
2. Auxiliary Enterprises At-A-Glance, 2018-19.....	141
XIX. Compensation, Employee and Retirement Benefits, and Non-Salary Cost Increases	
1. Compensation and Benefits At-A-Glance, 2019-20	147
2. Ladder Rank Faculty Salaries as a Percentage of Market	149
3. Increases in Funding for Staff Salaries Compared to Market.....	149
4. UCRP Historical Funded Status.....	152
5. Employer and Employee UCRP Contribution Rates	152
6. Actual and Projected Employer Contributions to UCRP and Savings Choice by Fund Source	153
XX. Department of Energy – Office of the National Laboratories	
1. Expenditure Plan for Income from LANS and LLNS for 2019-20	158
XXI. Historical Perspective	
1. Provisions of the Compact with Governor Wilson, 1995-96 through 1999-00	159
2. Provisions of the Partnership Agreement with Governor Davis.....	160
3. Provisions of the Compact with Governor Schwarzenegger, 2005-06 through 2010-11	162
4. Major 2011-12 State Budget Actions	165
5. The UC Budget Since 2002-03.....	174
Appendix	
1. Budget for Current Operations and Extramurally Funded Operations	175
2. University of California Income and Funds Available	176
3. SAPEP State General Funds and University Funds Budgets.....	178
4. Expenditures by Fund Category, 1980-81 Through 2018-19	179
5. Core Funds Expenditures by Fund Source, 1980-81 Through 2018-19	180
6. General Campus and Health Sciences Full-Time Equivalent Student Enrollment.....	181
7. General Campus Full-Time Equivalent Student Enrollment	182
8. Enrollment History, 1980-81 Through 2018-19	183
9. UC Mandatory Student Charge Levels	184
10. UC Average Annual Student Charges for Resident Undergraduate Students.....	185
11. UC Average Annual Student Charges for Nonresident Undergraduate Students.....	187
12. UC Average Annual Student Charges for Resident Graduate Academic Students	188
13. UC Average Annual Student Charges for Nonresident Graduate Academic Students	189
14. 2019-20 Total Charges for Undergraduates and Graduate Academics.....	190
15. 2019-20 Total Charges for Professional Degree Students by Program and Campus.....	191

UC's Role in the State of California

California's public investment in higher education fuels economic prosperity, social mobility, and cultural opportunities. The State's historic commitment enables the University of California not only to educate the brightest students – over 284,000 in 2019-20 alone – but to touch the life of every Californian.

- **UC educates the workforce** demanded by high technology, business, agriculture, entertainment, health care, education, and other sectors of the economy.
- **UC conducts research that fuels the State's economy**, creates jobs, increases productivity, and solves state and societal problems, leading to higher standards of living.
- **UC is a key source of innovation and entrepreneurs**, which are essential to the industries that drive California's competitiveness.
- **UC improves the health of Californians** by providing an unmatched combination of state-of-the-art patient care facilities and groundbreaking research programs, which are integrated with the nation's largest medical education program.
- **UC collaborates with K-12 schools** to improve the quality of instruction and expand educational opportunities.
- **UC offers public venues for cultural opportunities**, with dozens of museums, concert halls, art galleries, botanical gardens, observatories, and marine centers that serve as academic resources as well as exciting spaces for the broader community.

Display I-1: UC At-A-Glance

Founded in 1868, the University of California consists of:

- 10 campuses serving an estimated 284,800 FTE students in 847 instructional programs in 2019-20;
 - 5 academic medical centers providing approximately 4.7 million outpatient clinic visits each year;
 - In 2019-20, an over \$5 billion research enterprise, seeking new knowledge and solutions to critical problems;
 - A network of libraries housing nearly 40 million print volumes, second only to the Library of Congress;
 - Approximately 6,000 buildings representing over 141 million gross square feet in 2018-19; and
 - As of April 2019, 230,606 employees (or 166,885 full-time equivalent employees) across the system.
-

UC's excellence is well documented by the many honors and awards conferred upon faculty, departments, and campuses. That excellence, in turn, attracts billions of dollars in federal and private funding every year and supports the discovery and dissemination of new knowledge that promotes economic, social, and cultural development.

UC has long been a major contributor to California's vibrancy and strength. To meet the changing needs of future generations, California must continue to invest in the future by supporting its world-class public research university.

THE STATE'S HISTORIC INVESTMENT IN UC

The University's operating budget, estimated at \$39.8 billion in 2019-20, funds the core mission responsibilities of teaching, research, and public service, as well as a wide range of support activities, including teaching hospitals, the Lawrence Berkeley National Laboratory, UC Extension, housing and dining services, libraries, and other functions.

State General Funds remain extremely important because they support the University's core instructional mission and make it possible to attract funds from other sources. Other fund sources augment the University's core activities of instruction and research; support academic and administrative functions; allow UC to provide public service to the state and its people; and support rich social, cultural, and learning environments on its campuses. Each year, UC generates more than \$46 billion in economic activity. State funds leverage substantial private funding – the California Institutes for Science and Innovation, for example, is a unique funding partnership among the State, industry, and UC. This partnership is discussed in more detail in the *Research* chapter of this document.

State General Funds provide a significant amount of UC's core operating revenues. Approximately 42% of the University's current core funds come from the State. The other core funds are primarily student tuition and fees, including nonresident supplemental tuition. The University

THE PURSUIT OF EXCELLENCE

The University of California is internationally renowned for the quality of its academic programs and consistently ranks among the world's leading institutions in the number of faculty, researchers, programs, and campuses singled out for awards and distinctions, election to academic and scientific organizations, and other honors. These include:

- 65 Nobel laureates, representing nearly 7% of the 935 laureates.
- 63 National Medal of Science winners.
- 616 UC faculty members have been elected to the National Academy of Sciences, one of the highest honors that can be accorded to a U.S. scientist.
- Over 560 American Academy of Arts and Sciences members.
- 222 members of the National Academy of Medicine, formerly known as the Institute of Medicine.
- Nearly 1,000 American Association for the Advancement of Science members.
- 89 recipients of MacArthur Foundation "genius" grants since the Foundation's inaugural awards in 1981.
- Over 1,669 Guggenheim fellowships since 1930 – more than any other university or college.
- More licensable patents secured by UC than by any other U.S. research university.
- Five UC campuses ranked among the top 20 institutions in the nation by *Washington Monthly* 2019 college rankings, which consider social mobility, research, and public service. The San Diego campus was at the top of the list of UC campuses, ranking seventh overall.
- 141 of 322 UC programs in sciences, math, engineering, social sciences, and humanities ranked among the top 10 in their fields by the National Research Council in 2010.
- Five campuses among the top 10 American public universities in the 2020 edition of the *US News and World Report Best College* rankings.
- The medical centers at Los Angeles and San Francisco nationally ranked sixth and seventh, respectively, in *US News' Honor Roll* for the country's top 20 hospitals in 2019-20.
- Four UC campuses appeared in the top 20 of the 2019 Academic Rankings of World Universities by the Shanghai Ranking Consultancy, with UC Berkeley ranking No. 5. Only five public universities in the world appear in the top 20.

has historically received funding increases from the State during times of economic growth and decreases during times of State revenue decline. The fact that the State has always continued to reinvest in UC during times of economic growth shows the value that the Governor and Legislators place on UC's service to the State in education, research, and public service. UC funding decreases from the State can be dramatic, as during the aftermath of the Great Recession when the University's budget declined by a billion dollars over two years. While the State has fully restored the UC budget to the pre-recession levels, inflation and rapid enrollment growth, along with a commitment to as few student fee increases as possible, have made it difficult for the University to sustain the same level of services.

Over the past two decades, student tuition and fees, along with sources of University General Funds, such as Nonresident Supplemental Tuition, have partly mitigated the impact of State funding volatility caused by broader economic factors.

State investment has helped develop the finest public university system in the world. Protecting that investment is essential if UC is to remain among the world's top universities and continue to provide California with the economic and social benefits that stem from a great institution of research and learning.

UC'S COLLEGE GRADUATES AND THE CALIFORNIA ECONOMY

California's Economic Performance. California has a long history of strong economic performance, including thriving industries and high-paying jobs. California's economy, with an approximately \$2.9 trillion GDP, is the fifth largest in the world behind that of the United States, China, Japan, and Germany. Additionally, California's real median household income, adjusted for inflation, has exceeded the national average for the last three decades.¹

California became one of the world's leading economies in the second half of the 20th century in part because it has a

¹ U.S. Bureau of the Census, Real Median Household Income in California, retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/MEHOINUSCAA672N#0>.

high number of excellent research universities, which has helped to create and attract knowledge-based companies. For example, basic research at California's research universities served as the foundation for the biotechnology industry, and UC faculty and former students have founded hundreds of biotechnology companies. UC's discoveries, technology, and graduates are critically important to the success of many knowledge-based companies.

Declining Educational Attainment of the Labor Force.

As the state's baby boomers retire, they will be replaced by younger workers. These younger workers, however, will have lower educational levels than today's retirees. According to a 2006 report by economists at Sacramento State University's Applied Research Center called, "Keeping California's Edge: The Growing Demand for Highly Educated Workers,"

"In recent history, California's education pipeline has always assured that the next cohort to enter the labor force would be better educated than current and previous cohorts. Employers could anticipate the ever-improving educational attainment of the labor force. Now, for the first time, projections of California's education pipeline indicate declining labor force quality compared to previous cohorts, which raises questions about our ability to supply the higher-educated labor force of the future."

Indeed, adults ages 60 to 64 represent the best-educated age group in California today.²

Knowledge-based industries will drive California's longer-term economic competitiveness. Professional and managerial jobs, such as financial managers, marketing specialists, software developers, engineers, and research analysts, are among California's fastest growing occupations.³ These jobs typically require at least a bachelor's degree and often a master's or doctorate.

The California Postsecondary Education Commission's 2007 "Public Higher Education Performance Accountability Framework Report" documented that fields in critical need of highly educated professionals include computer occupations, engineering, teaching, nursing, and pharmacy.

THE CALIFORNIA MASTER PLAN FOR HIGHER EDUCATION

The Master Plan has served as California's blueprint for higher education for more than 50 years, specifying the mission of each segment of higher education. UC's mission is tripartite:

- **Teaching.** UC serves students at all levels of higher education and is the public segment primarily responsible for awarding doctorate and professional degrees in areas such as medicine and law.
- **Research.** UC is the primary State-supported academic agency for research. Research is inextricably linked with teaching at UC, both at the graduate and undergraduate levels. Research also creates a vital link between UC and the private sector with the development of new knowledge and innovation leading to new industries and jobs.
- **Public Service.** UC contributes to the well-being of communities, the state, and the nation through efforts including academic preparation programs, Cooperative Extension, and health clinics. Policy makers draw on the expertise of UC's faculty and staff to address public policy issues that are of importance to the state and society at large.

In its 2009 report "Closing the Gap: Meeting California's Need for College Graduates," the Public Policy Institute of California (PPIC) described the shortage of college-educated workers facing California. Just as the 2006 Sacramento State report had projected, the PPIC noted that, for the first time, retirees are not being replaced by a more plentiful and better educated younger workforce. One explanation for this phenomenon is that the retirement of the baby boomers represents an unprecedented labor force loss given the exceptional size and educational attainment of this generation, which is not being replicated in younger generations.

A Lumina Foundation report from 2010 called, "A Stronger Nation through Higher Education" shows that while California's percentage of college graduates is above the national average, an annual increase of college graduates of 6.7% is needed to produce enough educated

² PPIC. "Will California Run Out of College Graduates?" *Public Policy Institute of California*. October 2015. Web. http://www.ppic.org/main/publication_quick.asp?i=1166.

³ Employment Development Department. "Top 100 Fastest Growing Occupations in California, 2014-2024." *State of California*. 2015. Web. <http://www.labormarketinfo.edd.ca.gov/OccGuides/FastGrowingOcc.aspx>.

professionals by 2025 to meet California's projected workforce needs. Projections from a related study conducted by the PPIC in October 2015, "Will California Run Out of College Graduates?" indicate that, if current trends continue, the demand for college graduates will outpace the supply by approximately 1.1 million by 2030.

UC, CSU, and the California Community Colleges (CCC) each play a critical role in addressing these challenges given the vast numbers of Californians that attend these institutions. As indicated earlier and discussed further in the *General Campus Instruction* chapter of this document, UC has a unique responsibility to help meet the need for technically and analytically sophisticated workers because UC alone is charged by the State with providing educational opportunities within a world-class public research university environment.

Efforts to Increase College Graduates

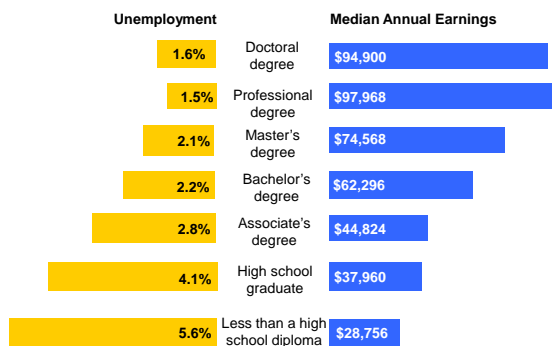
The need for more college graduates is evident, and UC is making gains towards meeting this demand. According to preliminary admissions reports, UC's fall 2019 incoming class was the largest class ever admitted. Among those who enrolled, an estimated 37% of California freshmen and 36% of California Community College (CCC) transfers came from historically underrepresented groups – African American, American Indian, and Chicano(a)/ Latino(a).

Opportunities for students to transfer to the University are growing. Based on preliminary campus 2019-20 admissions reports, UC admitted the largest class of California Community College transfers in the history of the University (approximately 26,700), advancing UC's efforts to enroll one new California resident transfer student for every two California resident freshmen.

California also needs more students with graduate-level training. Recent enrollment trends, efforts to expand transfer enrollment, and the need for more graduate students are discussed in more detail in the *General Campus Instruction* chapter of this document.

Returns on Investment. A more educated population generates more tax revenue and enjoys more rapid economic growth. Additionally, as Display I-2 demonstrates,

Display I-2: Earnings and Unemployment by Level of Education*



Source: Bureau of Labor Statistics, 2018 Current Population Survey.

*Data are for people age 25 and older. Earnings are for full-time wage and salary workers.

With the shift to a knowledge-based economy, individual income and employment are more closely linked to level of education. Average earnings are typically higher and unemployment rates are typically lower for those with more advanced levels of education.

higher education levels correlate with lower levels of unemployment and higher median earnings, which typically translate into enhanced social mobility. In fact, within five years of graduating from UC, Pell Grant recipients earn an average income higher than their parents' combined income during the time they attended UC. Across disciplines, incomes of UC bachelor's degree recipients double between two and ten years after graduation.

A more educated populace greatly benefits California. An April 2012 report from UC Berkeley's Institute for the Study of Societal Issues, "California's Economic Payoff: Investing in College Access and Completion," concludes:

- For every dollar California invests in students who attend college, the state will receive a return on investment of \$4.50 through taxing the increased and higher earnings of graduates as well as reducing costs on social services and incarceration.
- By age 38, college graduates have paid back California in full for the state's initial investment in higher education.
- Past graduates of UC and CSU return \$12 billion annually to California.

UC'S CONTRIBUTION TO THE STATE ECONOMY

In 2011, UC commissioned a study of its economic contribution to California. Though it is well established that UC-related economic activity touches every corner of California, making important contributions even in regions without a UC campus, the report quantified many of UC's economic impacts.

- UC generates about \$46.3 billion in economic activity and contributes about \$32.8 billion to the Gross State Product annually.
- Every dollar the California taxpayer invests in UC results in \$9.80 in Gross State Product and \$13.80 in overall economic output.
- One out of every 46 jobs in California – approximately 430,000 jobs – is supported by UC operations and outside spending by the University's faculty, staff, students, and retirees.
- UC is the state's third-largest employer, behind only the state and federal governments, and well ahead of California's largest private-sector employers.
- UC attracts about \$8 billion in annual funding from outside the state.

- Every \$1 reduction in State funding for UC has the potential to reduce state economic output by \$2.10 due to ripple effects of UC activities across the entire California economy.
- UC Health — UC's five academic medical centers and 18 health professional schools — plays a major role in the University's economic contribution to California, generating about 117,000 jobs in the state, \$16.7 billion in economic activity, and contributing \$12.5 billion to the gross state product.

The University of California is an inextricable part of the California economy, touching the lives of all the state's citizens. The fortunes of UC and the State are intrinsically linked: State investment in UC represents an investment in California and its citizens, as well. The University of California remains one of the top higher education systems in the world, as a research institution and as an engine of economic growth and social mobility. State investment in UC translates to investment in the future of California.

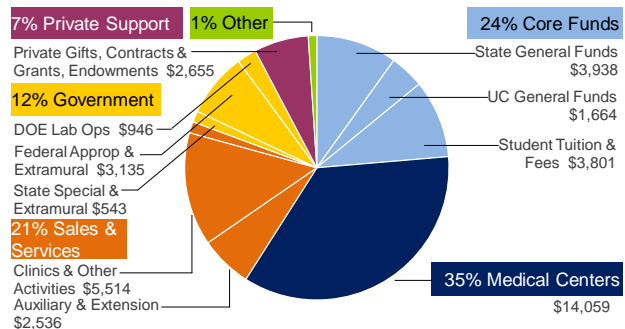
Sources of University Funds

The University's operating revenues, estimated to be \$39.8 billion¹ in 2019-20, support its tripartite mission of teaching, research, and public service, as well as a wide range of activities in support of these responsibilities, including medical centers, the Lawrence Berkeley National Laboratory, University Extension, housing and dining services, and other functions. As shown in Display II-1, UC's sources of funds are varied:

- **Core funds**, consisting of State General Funds, UC General Funds, and student tuition and fees, provide permanent funding for UC's core mission and support activities, including faculty salaries and benefits, academic and administrative support, student services, operation and maintenance of plant, and financial aid.
- **Medical center revenue**, including patient care service revenue from private health plans, Medi-Cal, and Medicare, and other operating revenues, which provide funding to support medical centers (also known as teaching hospitals), clinical operations, research, and faculty at the schools of medicine.
- **Sales and services revenues** directly support auxiliary enterprises such as housing and dining services, parking facilities, and bookstores; University Extension; and other complementary activities such as museums, theaters, conferences, and publishing.
- **Government contracts and grants** provide direct support for specific research endeavors, student financial support, and other programs.
- **Private support**, including Regents' endowment payouts; transfers from campus foundations; and other private gifts, grants, and contracts, funds a broad range of activities typically restricted by the donor or contracting party. Private support comes from alumni and friends of the University, foundations, corporations, and through collaboration with other universities.
- **Other sources** include indirect cost recovery funds from research contracts and grants, patent royalty income, and management fees for Department of Energy labs.

The University's annual budget is based on the best estimates of funding available from each of these sources. This chapter presents a digest of major fund sources. Later chapters of this document describe how the University's funds are expended.

Display II-1: 2019-20 Sources of Funds (Dollars in Millions)



UC's operating budget, totaling \$39.8 billion¹ in 2019-20, consists of funds from a variety of sources. State support, which helps leverage other dollars, remains critical.

CORE OPERATING FUNDS: GENERAL FUNDS AND STUDENT TUITION AND FEES

The University's "core funds," comprised of State General Funds, UC General Funds, and student tuition and fee revenue, provide permanent support for the core mission activities of the University, as well as the administrative and support services needed to perform them. Totalling \$9.4¹ billion in 2019-20, these funds represent 24% of UC's total operations. While all fund sources are critical to the success of the University, much of the focus of UC's strategic budget process and negotiation with the State is dedicated to the levels and use of these core fund sources.

State General Funds

State General Fund support for UC totals \$3.9¹ billion in 2019-20 and provides critical resources for the University. Each year, a portion of these funds is typically designated for specific programs or purposes in the State Budget Act. The majority of State General Funds, however, are undesignated, allowing them to be used where they are most needed to support the University's core mission activities.

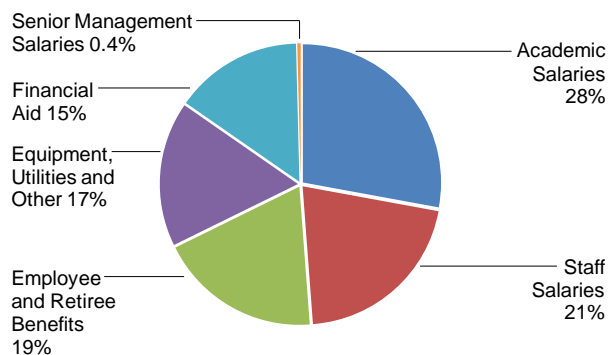
UC General Funds

In addition to State General Fund support, certain other fund sources are unrestricted and expected to provide general

¹ Includes \$187.5 million of State support dedicated to General Obligation bond debt service. This is not available for current operations.

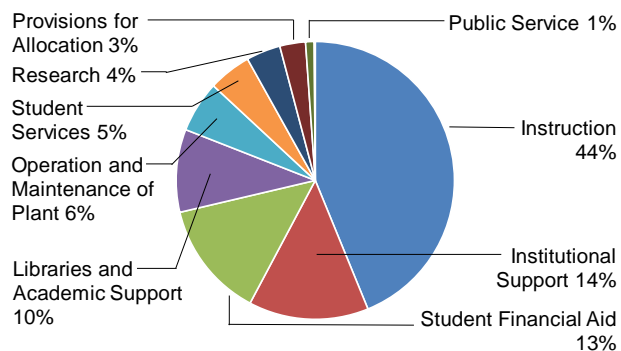
Sources of University Funds

Display II-2: 2018-19 Core Funds Expenditures by Type



Two-thirds of core funds support academic and staff salaries and benefits.

Display II-3: 2018-19 Core Funds Expenditures by Function



Nearly half of core funds are spent on general campus and health sciences instruction.

support for the University's core mission activities, based on long-standing agreements with the State. Collectively referred to as UC General Funds, these include:

- Nonresident Supplemental Tuition,
- a portion of indirect cost recovery on federal and State contracts and grants,
- fees for application for admission and other fees,
- a portion of patent royalty income, and
- interest on General Fund balances.

The University expects to generate \$1.7 billion in UC General Funds during 2019-20. The largest sources of UC General Funds are Nonresident Supplemental Tuition (\$1.3 billion) and indirect cost recovery on federal contracts and grants (\$303 million).

Student Tuition and Fees

Revenues generated from student fees fall into three general categories:

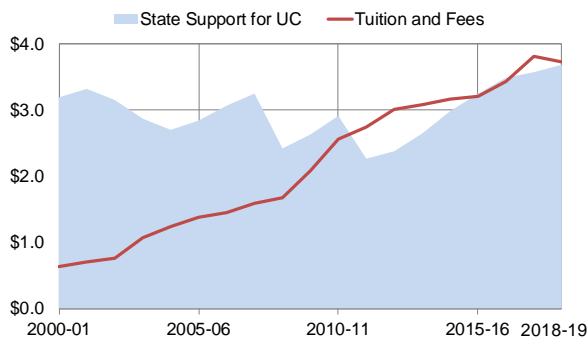
- Tuition revenue supports University operations for instruction, libraries, operation and maintenance of plant, student services, student financial aid, and institutional support. During 2019-20, Tuition is \$11,442 and will generate an estimated \$3.2 billion.
- Student Services Fee revenue provides funding for student life, student services, and other activities that provide extracurricular benefits for students, as well as capital improvements for student life facilities. The Student Services Fee, currently set at \$1,128, will generate an estimated \$317 million during 2019-20.
- Professional Degree Supplemental Tuition revenue helps fund instructional costs associated with the professional schools, including faculty salaries, instructional support, and student services, as well as student financial support. Professional school fees vary by program, campus, and student residency status and are expected to generate \$331 million in 2019-20.

These and other UC student fees are discussed in detail in the *Student Tuition and Fees* chapter of this document.

Historical Changes in State Funds Support

State funding for UC has fluctuated dramatically with economic conditions over the past twenty years, as shown in Display II-4. As a consequence of the State's volatile revenue streams, the University's core fund budget has shifted towards an increased reliance on tuition and fees and UC General Funds.

Display II-4: State General Fund Support versus Student Tuition and Fee Revenue (Dollars in Billions)



While State support for UC has fluctuated with the state's economy, tuition and fees have become a larger share of UC's core funds budget, primarily due to enrollment growth.

While the State has provided more consistent annual increases to the University's base budget during the last eight years, this funding has come with additional expectations related to California resident undergraduate enrollment growth, transfer enrollment, and limiting

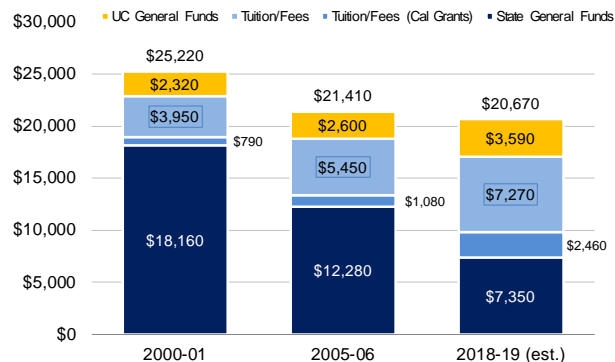
nonresident undergraduate enrollment. The University has met or exceeded these expectations with minimal increases in systemwide tuition and fees over the past eight years. Doing so, however, has put pressure on the University's ability to maintain a high quality of education for its students.

Display II-5 shows per-student expenditures for education in inflation-adjusted dollars and yields several key findings:

- The average core fund expenditure per student has declined by 18% over 18 years – from \$25,220 in 2000-01 to an estimated \$20,670 in 2018-19.
- The share of support provided by State has declined. In 2000-01, State funding for UC, including Cal Grants, contributed \$18,160 per student – 72% of the total cost. In 2018-19, the State share declined to \$7,350, or 36% of the total cost.
- As State support has declined, the importance of revenue derived from tuition and fees and UC General Funds has grown. In 2000-01, tuition and fees represented only 19% of expenditures for education compared to 47% in 2018-19. Similarly, the share from UC General Funds has increased from 9% to 17% over the same period.

These findings raise additional points. First, while the University has reduced some costs through efficiencies, this is not been sufficient to offset the impact of anemic growth in state funding. As educational costs have outpaced growth in core fund revenue, austerity measures have affected the quality of a UC education. Examples include higher student-faculty ratios; overcrowded classrooms; inadequate investment in instructional equipment, library materials, and online courses; and a growing backlog of deferred maintenance.

Display II-5: Per-Student Average Expenditures for Education (2018-19 Est. Dollars)



Average inflation-adjusted expenditures for educating UC students have declined since 2000-01. The University is increasingly relying on student-related charges.

Second, national news coverage about the high cost of college obscures what has really happened at UC. From 2000-01 to 2010-11, systemwide tuition and fees were increased to offset the impacts of reduced funding from the State. Expenditures per student have actually fallen, not increased, in inflation-adjusted dollars.

Third, despite rising student fees, UC has successfully maintained student access and affordability. While tuition and fees have increased, significant increases in financial aid from both the University's financial aid programs and State financial aid programs have helped to ensure access for more low- and middle-income students and to allow them to graduate with student loan debt that is well below the national average.

MEDICAL CENTERS

The University's medical centers generate three types of revenue:

- **Patient service revenues** are charges for services rendered to patients at a medical center's established rates, including rates charged for inpatient care, outpatient care, and ancillary services. Major sources of revenue are government-sponsored health care programs (i.e., Medicare and Medi-Cal), commercial insurance companies, managed care and other contracts, and self-paying patients.
- **Other operating revenues** are derived from non-patient care activities of the medical centers, such as cafeteria sales and parking fees.
- **Non-operating revenues** result from activities other than normal operations of the medical centers, such as interest income and the sale or disposal of capital assets.

Medical center revenues are used for operating expenses, including salaries and benefits, supplies and services, workers' compensation and medical malpractice insurance, and other expenditures. This revenue also helps support operations, clinical research, and faculty practice programs at the schools of medicine. Remaining revenues are used to meet working capital needs, fund capital improvements, and provide a reserve for unanticipated downturns.

Expenditures of hospital income for current operations are projected to total \$14.0 billion during 2019-20. The *Teaching Hospitals* chapter discusses actions taken to address the challenges confronting the medical centers.

SALES AND SERVICES REVENUES

Revenues from self-supporting enterprises represent \$8.6 billion, or 22% of the University's 2019-20 budget. Such enterprises include the University's educational activities, including health clinics; auxiliary enterprises such as housing and dining services, parking facilities, and bookstores; University Extension; and other complementary activities such as museums, theaters, conferences, and scholarly publishing. Net revenues from these activities are dependent upon the quality of the direct services and products being provided as well as the prices that the market will bear.

Auxiliary Enterprises

Auxiliary enterprises are non-instructional support services provided primarily to students, faculty, and staff. Programs include student residence and dining services, parking, bookstores, faculty housing, and a portion of intercollegiate athletics or recreational activities on some campuses. No State funds are provided for auxiliary enterprises; revenues are derived from fees directly related to the costs of goods and services provided. Total expenditures for auxiliary enterprises are projected to be \$1.4 billion in 2019-20. These activities are described in more detail in the *Auxiliary Enterprises* chapter of this document.

University Extension, Other Self-Supporting Instructional Programs, and Other Campus Fees

In addition to the tuition and fees charged for full-time degree programs, the University also generates fee revenue from enrollment in University Extension courses and self-supporting instructional programs, and enrollment of non-UC students in summer instruction. These programs are expected to be entirely self-supporting; fees are charged to cover the full cost of offering the courses and programs. Programs are dependent upon user demand. Campuses also charge fees for a variety of student-related expenses not supported by mandatory systemwide tuition and fees, such as student health insurance fees and course materials fees. Revenue from University Extension, other self-supporting instructional programs, and other campus fees is projected to be \$1.1 billion in 2019-20.

Educational and Support Activities

Revenue from sales and services of educational and support activities is projected to total \$6.1 billion in 2019-20. This

Display II-6: 2018-19 Federal Support for UC and UC Students (Dollars in Millions)

<u>Program Support</u>	
Research Grants and Contracts	\$2,254.9
Indirect Cost Recovery	\$829.2
DOE National Laboratory Operations	\$775.8
DOE Laboratory Management Fees	\$25.2
Other Contracts and Grants	\$292.3
<u>Student Financial Aid</u>	
Pell Grants	\$411.8
Other Undergraduate Grants and Scholarships	\$20.3
Graduate Fellowships and Scholarships	\$89.0
Student Loans	\$1,138.6
Work-Study	\$27.3
<u>Patient Care</u>	
Medicare	\$2,641.0
Medicaid	<u>\$2,095.1</u>
Estimated Total Federal Support	\$10,600.4

includes revenue from the health sciences faculty compensation plans and a number of other sources, such as neuropsychiatric hospitals, the veterinary medical teaching hospital, dental, and optometry clinics, fine arts productions, museum ticket sales, publication sales, and athletic facilities users. Similar to auxiliary enterprises and academic medical centers, revenues are generally dedicated to support the underlying activity.

GOVERNMENT CONTRACTS, GRANTS, AND AGENCY APPROPRIATIONS

Contract and grant activity generates \$5.0 billion annually in revenue for the University and plays a key role in the University's position as a major driver of the California economy. Government sources, including the Department of Energy (DOE) and other federal agencies, state agencies, and local governments are significant providers of contract and grant funding. Contract and grant activity that is codified in legislation or based on long-standing agency agreements is permanently budgeted. In addition, non-permanent extramural funds are provided for specified purposes. The majority of this funding supports research, including salaries, benefits, equipment, subcontracts, and student financial aid.

Federal Funds

Federal funds provide support for UC in three primary areas: research contracts and grants, student financial aid, and health care programs.

Federal funds are the University's single most important source of support for research, generating \$2.3 billion and accounting for 43% of all University research expenditures in 2018-19. While UC researchers receive support from virtually all federal agencies, the National Institutes of Health and the National Science Foundation are the two largest sponsors, accounting for nearly 75% of UC's federal research contract and grant awards in 2018-19. Although Federal funds for UC research have grown significantly over the past several decades, the fiscal year 2013 sequestration and other constraints on federal spending, including cuts required by the 2011 Budget Control Act, have resulted in declines or stagnation of federal research funding available to the University. UC continues to face the prospect of lower federal award funding in fiscal year 2019 through 2021, for discretionary programs, and through 2025 for some mandatory programs.

Indirect cost recovery (ICR) funding reimburses the University for facilities and administration costs associated with research activity that cannot be identified as solely benefiting a particular contract or grant. During 2018-19, indirect cost recovery funding from federal contract and grant activity was about \$829.2 million and was dedicated to support contract and grant administration, core mission activities (in the form of UC General Funds), and special programs. The University is working to recover more of its indirect costs from research sponsors by increasing its negotiated federal rates and improving waiver management. While nearly all of the campuses have negotiated increases in the ICR rate, this has only partially mitigated declines in federal research funding.

In addition to research contracts and grants, federal funds entirely support the Lawrence Berkeley National Laboratory, for which UC has management responsibility. This support is projected to be \$946 million in 2019-20.

Federal student aid programs represent the single largest source of financial aid for UC students. Federal loan programs are available to assist both undergraduate and graduate UC students. In addition, needy students are eligible for federally-funded grant programs such as Pell Grants, and they may seek employment under the Federal Work-Study Program, through which the federal government subsidizes 50-100% of a student employee's earnings.

FEDERAL INDIRECT COST REIMBURSEMENT

All federal contract and grant activity generates costs which are divided into two basic categories: direct costs are charged to a specific contract or grant; and indirect costs, including facilities or administrative expenses, are shared across multiple contracts or grants. A discussion of indirect cost recovery and federal research funds is included in the *Research* chapter of this document.

The University has an agreement with the State regarding the disbursement of federal reimbursement. Pursuant to this agreement, the first 19.9% of the reimbursement accrues directly to the University for costs of contract and grant administration in campus sponsored project offices, academic departments, and research units.

The remaining 80% of the federal reimbursement is split into two funds. The first 55% is budgeted as UC General Funds, which help to support the University's core funds budget. The remaining 45% is the source of the University Opportunity Fund. This is used to make strategic investments in University and campus priorities, such as enhancing faculty recruitment packages through laboratory alterations, equipment purchases, and support for graduate student researchers; providing innovative instructional programs; and additional funding for capital.

Graduate students receive fellowships from a number of federal agencies, such as the National Science Foundation and the National Institutes of Health. The *Student Financial Aid* chapter provides additional detail.

Finally, as mentioned earlier, federally-supported health care programs provide significant funding to the University's medical centers for patient care through Medicare and Medi-Cal, totaling \$4.7 billion in 2018-19.

State Agency Agreements

Similar to federally sponsored research, California State agencies provide contracts and grants to the University for a variety of activities. The largest area is research, but these agreements also support public service and instruction. These agreements are expected to generate \$353 million in revenue for the University during 2019-20. Major providers of State agency agreements are the health care services, social services, transportation, food and agriculture, and education departments. Indirect cost recovery on State agency agreements is treated as UC General Fund income and supports the University's core mission activities.

State Special Funds

In addition to State General Fund support and State agency contracts, UC's budget for 2019-20 includes a total of \$190.2 million in appropriations from State special funds, as shown in Display II-7.

Display II-7: 2019-20 State Special Funds by Revenue Source (Dollars in Millions, unless otherwise noted)

<u>Research and Prevention Tobacco Tax Act of 2016</u>	
Medical Research of Tobacco-related diseases	\$70.8
Graduate Medical Education Programs	\$38.7
<u>California State Lottery Education Fund</u>	
Instructional Activities and Programs	\$41.8
<u>Cigarette and Tobacco Products Surtax Fund</u>	
Research of Tobacco-related diseases	\$11.4
Breast Cancer Research	\$10.6
<u>Other State Special Funds</u>	
Road Maintenance and Rehabilitation	\$5.0
Oil Spill Prevention and Administration Fund	\$2.5
Umbilical Cord Blood Collection Program	\$2.5
Health Care Benefits Fund	\$2.0
California Cannabis Tax Fund	\$2.0
State Transportation Fund	\$1.0
<u>Other Funds less than \$1M (in '\$000's)</u>	
Public Transportation Account	\$980
California Cancer Research Fund	\$425
Breast Cancer Research Fund	\$250
Type I Diabetes Research Fund	\$250
Total State Special Funds	\$190.2

ENDOWMENT EARNINGS AND PRIVATE GIFTS, GRANTS, AND CONTRACTS

Private funds include endowment payout as well as gifts, grants, and contracts. The Regents' endowment annually provides support for a wide range of activities. Gifts and private grants are received from alumni, friends of the University, campus-related organizations, corporations, private foundations, and other nonprofit entities, with foundations providing nearly half of total private gift and grant support. Private contracts are entered into with for-profit and other organizations to perform research, public service, and other activities.

Endowments

Combined Regents' and campus foundation endowments were valued at approximately \$20.9 billion as of June 30, 2019. Payments from the Regents' General Endowment

Pool (GEP), computed as a trailing five-year moving average, resulted in distributions approximately 8.2% higher than those from 2017-18.

Expenditures of endowment payouts support a range of activities, including endowed faculty chairs, student financial aid, and research. Approximately 83% of UC's overall endowment is restricted, however, limiting its use. This is higher than the comparable percentages for most public institutions (80%) and private institutions (55%), on average.

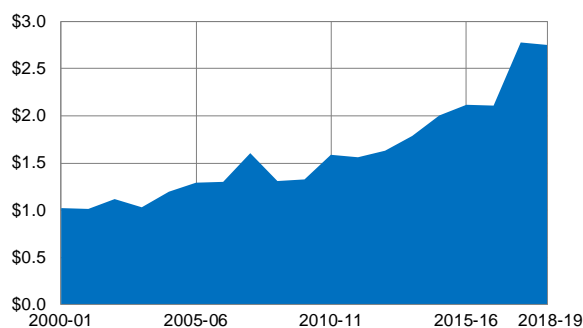
In 1998-99, the Regents approved a payout rate based on the total return of the GEP over the previous 60 months, with a long-term target rate set at 4.75%. This policy is intended to smooth annual payouts and avoid significant fluctuations due to market conditions.

Payouts from the Regents' endowments are permanently budgeted, while payouts from campus foundations are recorded as extramural (non-permanent) private grants. In 2018-19, the expenditure of the payout distributed on endowments and similar funds was \$387 million from the Regents' endowments and approximately \$340 million from campus foundations. Payouts in 2018-19 are expected to be slightly higher than those in 2017-18.

Private Support: Gifts and Grants

Private funds provide support for instruction, research, campus improvements, and student financial support, among other programs. In 2018-19, approximately 99% of new gifts to UC were restricted in their use.

Display II-8: Private Gift and Grant Support (Dollars in Billions)



In 2018-19, gifts and pledge payments totaled nearly \$2.8 billion.

In 2018-19, new gifts and private grants to the University were just over \$2.7 billion. Approximately \$678 million of this total was designated for endowments, which can be expected to generate stable future funding but which are unavailable for current expenditure. Health science disciplines receive nearly half of all private support. The University’s remarkable achievement in obtaining private funding in recent years – even during state and national economic downturns – is a testament to UC’s distinction as a leader in philanthropy among the nation’s public colleges and universities, and the high regard in which its alumni, corporations, foundations, and other supporters hold the University.

Private Contracts

In 2018-19, revenue from private contracts totaled \$923 million, a decline of 0.7% from 2017-18. Over the last ten years, awards have increased by 22% in inflation-adjusted dollars, making private contracts an increasingly important source of University funding. These contracts, which primarily support research purposes, include clinical drug trials with pharmaceutical and health care organizations, as well as agreements with other agencies, including institutions of higher education.

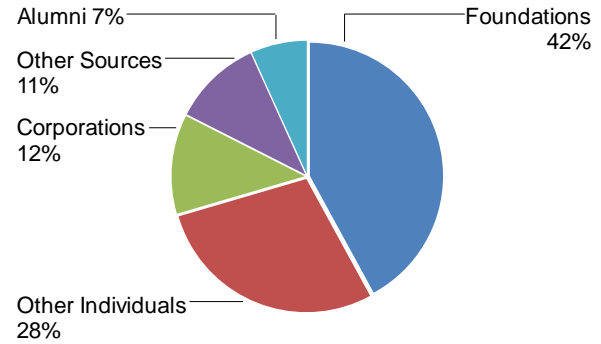
OTHER FUND SOURCES

DOE National Laboratory Management Fee Revenue

As compensation for its oversight of the DOE National Laboratories at Berkeley, Livermore, and Los Alamos, the University earns management fees which can be used to support other activities. Performance management fees from Lawrence Berkeley National Laboratory (LBNL) are gross earned amounts before the University’s payments of unreimbursed costs. By contrast, net income from the Los Alamos National Security LLC (LANS) and Lawrence Livermore National Security LLC (LLNS) reflects net share of fee income remaining after payment of unreimbursed costs at the two laboratories and shares to other owners. For 2019-20, UC’s estimated share of income from LANS and LLNS is \$25.2 million.

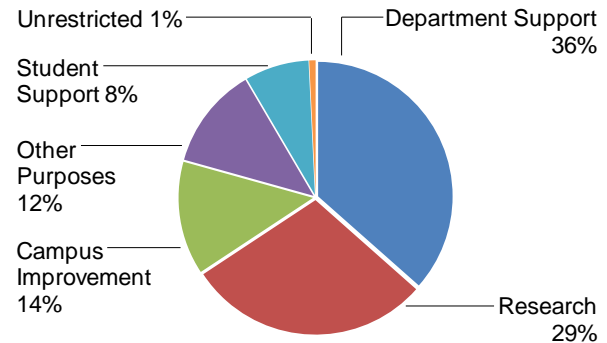
Management fee revenue related to LBNL is used for costs of oversight, research programs, reserves for future claims, and unallowable costs associated with LBNL. Per Regental approval, revenue from LANS and LLNS will be used to

Display II-9: 2018-19 Private Gift and Grant Support by Source



More than half of gift and grant support to the University is provided by foundations and corporations.

Display II-10: 2018-19 Private Gift and Grant Support by Purpose



Academic departments and research receive two-thirds of private gift and grant support.

provide supplemental income to select LANS employees, to cover unreimbursed oversight and post-contract costs, and to support a variety of University research programs. Further information about DOE Laboratory Management activity and revenue can be found in the *Department of Energy – UC National Laboratories* chapter of this document.

Intellectual Property Royalty Income

Income derived from royalties, fees, and litigation recovery, less the sum of payments to joint holders, net legal expenses, and direct expenses, is distributed to various stakeholders according to the University Patent Policy and campus policies. Patent income fluctuates significantly from year to year and budget estimates are based upon historical trends. This revenue appears in the University budget in two categories: as a component of UC General Funds and as part of Other Funds. Income distributions after mandatory payments to joint holders and

law firms (for legal expenses) were \$166.3 million in 2017-18, which included a one-time legal settlement of \$85.8 million. While 2,236 inventions generated royalty and fee income, the 25 most profitable inventions collectively accounted for more than 86% of total revenues.

- **Inventor Shares:** The University Patent Policy grants inventors the right to receive a percentage of net income accruing to individual inventions. The terms of the inventor share calculations are established in the Patent Policy. In 2017-18, 2,330 inventors received \$31.0 million.
- **General Fund Share:** In 2017-18, the portion of net income allocated to the UC General Fund was \$33.6 million, equal to 25% of the amount remaining after deducting payments to joint holders, legal expenses, and inventor shares (excluding inventions managed by LBNL).
- **Research Allocation Share:** For inventions covered by the 1997 Patent Policy, 15% of net income from each invention is designated for research-related purposes at the inventor's campus or Laboratory. This allocation totaled \$8.0 million in 2017-18.
- **Income after Mandatory Distributions:** All income remaining after deductions and other distributions is allocated to the campuses. These funds, totaling \$93.7 million in 2017-18, are used by the chancellors to support education and research priorities.

Cross-Cutting Issues

Several of the University's budget issues intersect multiple areas. This chapter provides detailed information about four of these cross-cutting issues for 2019-20: the University's multi-year framework for improving student outcomes, closing achievement gaps, and reinvesting in faculty; presidential initiatives; University quality; and diversity.

A NEW MULTI-YEAR FRAMEWORK

The UC Regents adopted a multi-year framework in early 2019 known as "UC 2030: Advancing the California Dream." This framework seeks to achieve the following key goals: to produce over 200,000 additional degrees (on top of the one million undergraduate and graduate degrees currently projected); to raise the undergraduate four-year graduation rate to 76% and the six-year graduation rate to 90%; to eliminate gaps for timely graduation and graduate degree attainment for Pell recipients, first-generation students, and underrepresented groups; and to invest in the next generation of faculty and research by adding 1,100 ladder-rank faculty over the next four years.

Over 40,000 of these 200,000 additional degrees are projected to be at the graduate level. This growth will primarily be achieved through increased graduate enrollment across the system. Not only will this growth support degree attainment goals, but it will also increase the share of graduate students across the system, currently at 21%, compared to 27% for non-UC public members of the Association of American Universities (AAU) and 55% for AAU private institutions. This graduate growth will also advance UC research activities and support undergraduate degree attainment through teaching and mentorship.

As part of this framework, UC seeks to ensure that nine out of ten freshman and transfer entrants leave UC with a degree, and to eliminate gaps in timely graduation for Pell grant recipients, first-generation students, and students from underrepresented groups. One challenge to achieving these ambitious goals is a recent decline in first-year retention rates, around one percentage point for freshman and transfer entrants since 2015. Retention has dropped even further for freshman entrants who are

underrepresented (two percentage points), Pell grant recipients (almost two percentage points), and first-generation students (1.5 percentage points) – exactly the populations UC is targeting to support in timely graduation. These data emphasize the need for additional instructional resources to reverse this trend.

UC is also seeking to receive additional State support to hire 1,100 ladder-rank faculty over the next four years. This support would allow UC to continue to increase the diversity of its ladder-rank faculty and to bolster efforts to retain faculty who contribute to that diversity. Additional faculty would help to achieve undergraduate and graduate degree attainment goals, grow high-demand programs, create new academic programs, and expand research that addresses California's needs and contributes to economic growth.

At the November 2017 meeting of the Board of Regents, representatives from the Public Policy Institute of California (PPIC) presented findings indicating that, by 2030, 1.1 million jobs requiring a bachelor's degree or higher will be available in California without qualified workers to meet this demand. To address this workforce skills gap, PPIC proposed that the University of California award an additional 251,000 degrees between 2015-16 and 2029-30 above and beyond the number that it would be expected to award based on recent trends. The University's models have shown that enrollment growth alone will not be sufficient to achieve this target. Sustained efforts to increase degree production, coupled with enrollment growth, would allow the University to make substantial progress toward this goal. As mentioned earlier, UC is striving to raise four-year undergraduate completion to 76% and six-year completion to 90% by 2030.

In addition to helping the State meet its projected workforce needs, improved graduation rates and reduced time-to-degree offer other benefits that support multiple goals. For example:

- A shorter time-to-degree increases the affordability of a UC education by reducing the costs to students and parents associated with an additional term or year of attendance.

- Students' lifelong earning potential is increased when they enter the workforce sooner rather than later, thereby contributing toward students' upward socioeconomic mobility.
- Having students graduate sooner creates more space on campuses to permit larger incoming classes while reducing the need for additional capital investment.

PRESIDENTIAL INITIATIVES AND PROGRAMS

President Napolitano has launched a series of high priority initiatives that span all three components of the University's mission – instruction, research, and public service.

Several of these initiatives directly relate to developing future generations of students, researchers, and faculty members, with a particular emphasis on diversity and inclusion consistent with UC's historic social contract:

- **Assistance for Undocumented Students.** Recognizing that California's undocumented students face unique challenges, this initiative represents a multifaceted approach to support their success at UC. Elements include providing free immigration-related legal services to undocumented and immigrant students, supporting the California DREAM Loan program, funding campus student services coordinators, establishing the President's Advisory Council on Undocumented Students, convening a national summit on undocumented students, and providing centralized resources for students and families on a single website (undoc.universityofcalifornia.edu). On November 30, 2016, the University released its "Statement of Principles in Support of Undocumented Members of the UC Community." These principles, which are to be implemented through policies and procedures at all UC campuses and medical facilities, include the following:

- Undocumented students will continue to be considered for admission under the same criteria as U.S. citizens or permanent residents.
- No confidential student records will be released without a judicial warrant, subpoena, or court order, unless authorized by the student or required by law; no UC campus police department will undertake joint efforts with local, state, or federal law enforcement agencies to investigate, detain, or arrest individuals for violation of federal law.
- The University will not participate in any effort to create a registry of individuals based on any protected characteristics such as religion, national origin, race, or sexual orientation.

The principles can be found in their entirety here: <https://www.universityofcalifornia.edu/sites/default/files/Statement-of-Principles-in-Support-of-Undocumented-Members-of-UC.pdf>.

- **President's Postdoctoral Fellowship Program.** The goal of this program is to attract the nation's top postdoctoral scholars whose work contributes to UC's mission to serve an increasingly diverse state, nation, and world. Fellowships are available to support postdoctoral students performing cutting-edge research who have a proven commitment to diversity and equal opportunity in higher education. Funding is also available to hire these scholars as UC faculty. With additional support from President Napolitano, the program has over 100 active fellows in 2019-20.
- **President's Diversity Pipeline Initiative.** This initiative seeks to increase the eligibility, admission, and enrollment of underrepresented undergraduates at the University of California, with a particular emphasis on increasing the enrollment of African American students. The initiative seeks to accomplish these goals through five short-term and long-term strategies:
 - Admissions & yield: ensure that admissions and yield practices maximize opportunity/access for underrepresented group (URG) applicants
 - Scholarships: remove financial aid as a barrier to accepting a UC offer of admission for URG students
 - Inclusion: build URG student, family and community awareness of UC as a viable undergraduate or graduate option
 - Identification, Preparation, Cultivation: engage URG students in UC's intellectual life early and often to increase their preparation for UC,
 - Campus climate: improve campus climate so that students, faculty, and staff feel respected and valued regardless of their backgrounds, identifies or group affinities.

The Diversity Pipeline Initiative has yielded promising results since it was launched by the UC Office of the President in October 2015. For more information, see Chapter 7 in the 2017 Accountability Report: <http://accountability.universityofcalifornia.edu/2017/chapters/chapter-7.html>.

- **Partnerships with Historically Black Colleges and Universities (HBCUs).** The UC-HBCU Initiative seeks to increase the number of graduates of HBCU institutions who complete UC Ph.D. programs. The initiative provides grants for UC faculty to host HBCU students to conduct summer research at a UC campus. If admitted to a UC Ph.D. program, fellows receive competitive support offers.
- **Public Service Law Fellowships.** This initiative created a first-of-its-kind fellowship program to support enrolled UC law students and graduates committed to public service. The program awards \$4.5 million annually to students at UC Berkeley, UC Davis, UC Irvine and UCLA, making public interest positions more accessible.

- **Student Public Service Fellowships.** This initiative established a fellowship program through the UC Center Sacramento and UC Washington Center aimed at encouraging undergraduate students to enter public service careers.

Other initiatives seek to have a global impact by bringing leadership and resources to issues facing California and the world:

- **Global Food Initiative.** The UC Global Food Initiative (GFI) seeks to address one of the critical issues of our time: how to sustainably and nutritiously feed a world population expected to reach eight billion by 2025. GFI also addresses topics such as UC student food security, agro-ecological practices, and resource conservation, as well as encouraging hands-on agricultural education and increasing the amount of locally produced organic food available to the UC community. The initiative aligns the University's research, outreach, and operations in a sustained effort to develop, demonstrate, and export solutions – throughout California, the United States, and the world – for food security, health, and sustainability.
- **Carbon Neutrality Initiative.** This initiative supports the University's ambitious goal of becoming the first major research university to achieve carbon neutrality by 2025. The initiative builds upon UC's pioneering work on climate research and its leadership on sustainable business practices to improve its energy efficiency, develop new sources of renewable energy, and pursue related strategies to cut carbon emissions. In 2018 UC launched the University Climate Change Coalition, a network of research institutions from the United States, Canada, and Mexico, known as UC3. This cohort of universities is committed to mobilizing resources and expertise to accelerate local and regional climate action in partnership with businesses, cities, and states.
- **UC-Mexico Initiative.** The UC-Mexico initiative is addressing issues facing our shared populations, environment, and economies. Through sustained, strategic, and equal partnership between UC and educational institutions in Mexico, the initiative will increase student and faculty exchange and provide opportunities for collaborative research in key areas, including education, health, sciences, agriculture/sustainability, arts, and culture. This initiative is currently in the process of being integrated with other, related programs under the stewardship of UC Riverside.

In addition, the President has launched several initiatives to improve campus life and streamline operations. Among these are:

- **Student Housing Initiative.** In January 2016, President Napolitano announced a housing initiative to support current students and future enrollment growth across the UC system. The goals of the initiative are to provide an

additional 14,000 new, affordable beds for undergraduate and graduate students across the system by 2020. UC campuses are located in some of the most volatile and expensive rental markets in the nation, with housing rates significantly affecting students' total cost of attendance. The initiative strives to increase the inventory of available housing for students while ensuring that housing options remain as affordable as possible.

- **Cybersecurity.** Risks associated with cyberattacks have increased dramatically for the University. As a high-profile research institution possessing significant intellectual property and a healthcare enterprise with 15 million patient records, UC is keenly aware of the threats to its faculty, staff, and students in today's connected world. In response to these threats a five-point cybersecurity plan has been developed to better protect the University's assets, detect nefarious activity in our environments, and respond in an appropriate and expeditious manner to attacks. The plan includes updated governance, enhanced risk management, adoption of modern technology, hardening UC's security environment, and instituting systemwide cultural change.
- **The President's Task Force on Preventing and Responding to Sexual Violence and Sexual Assault.** This task force was formed in July 2014 with the goal of establishing UC as a national model for preventing and combating sexual violence and sexual assault. Since its formation, the task force has identified steps to improve the University's processes of effecting cultural change in sexual violence and assault prevention, and developed recommendations for implementing strategies to support excellence in prevention, response, and reporting of sexual violence, harassment, and sexual assault based on evidence-informed solutions and approaches. On January 1, 2016, the University issued an updated University sexual violence and sexual harassment policy. As part of UC's continuing strategy to more effectively prevent and respond to sexual violence and sexual harassment on campuses, the revised policy implemented new systemwide procedures for investigating, adjudicating, and imposing sanctions in student cases of sexual violence and sexual harassment. The new procedures assign specific authority, roles and responsibilities to designated offices to ensure consistency across the UC system, and set projected timeframes designed to promptly and effectively respond to complaints. They outline a fair process in which a student filing a complaint and a student responding to the complaint can be heard, offer witnesses and evidence, and appeal. For more information about these efforts, please see the *Student Services* chapter of this document.

QUALITY AT THE UNIVERSITY OF CALIFORNIA

What defines quality at a major research university? The metrics that are commonly used when rating great universities include maintaining an outstanding faculty, measured in terms of individual achievements as well as adequate numbers to teach and train; recruiting and educating outstanding undergraduate and graduate students, as well as graduating them expeditiously; sustaining or enhancing those activities that receive positive evaluations from students and faculty with respect to the quality of education provided; and supporting core academic needs. Several key indicators of instructional performance show that to date, the University has managed to sustain and even improve outcomes for its students. Maintaining these outcomes, however, is a challenge the University must address, given the reality of limited State resources.

A Distinguished Faculty

The quality of the University of California is founded on its distinguished faculty. UC faculty members provide stellar instructional programs, research and creative work, professional leadership, and public service. The faculty fulfill the University's goals on behalf of the State of California by:

- delivering excellence in teaching;
- driving intellectual engagement, discovery, economic vitality, and cultural vibrancy;
- educating the workforce to keep the California economy competitive;
- providing health care to millions of Californians; and
- attracting billions of research dollars, creating new products, technologies, jobs, companies, and advances in healthcare, and improving the quality of life.

In fall 2018, UC employed 11,277 faculty (headcount) with appointments in the Ladder Rank and Equivalent series, the core faculty series charged with the tripartite mission of teaching, research, and public service. The University employs additional faculty in Clinical Professor and In-Residence titles, as well as in Adjunct Professor, Visiting Professor, and Lecturer titles. Retired faculty are also recalled to part-time service, to provide depth and breadth in fulfilling UC's mission. In 2018-19, expenditures on base salaries for appointments in all faculty series (from all revenue sources including State funds, student tuition and

fees, contracts and grants, gifts and endowments, and clinical services) totaled more than \$2.9 billion. Current data reveal continuing faculty achievement, even as recruitment and retention challenges have increased.

Faculty continue to perform at top levels marked by awards for both established and early career faculty. Moreover, in 2017-18, UC awarded 0.40 doctoral degrees per tenured/tenure-track faculty member, compared to 0.34 doctoral degrees per faculty on average at both AAU private and non-UC AAU public institutions. Nevertheless, several trends illustrate major challenges facing the University that, if not addressed, will threaten the University's ability to sustain access and excellence:

- Over the past two decades, student enrollment has far outpaced growth in faculty. This growing imbalance between enrollment growth and growth in the number of faculty is troubling and must be addressed in the coming years.
- In 2018-19, UC's faculty salaries were 7.5% below market.
- Challenges of hiring a diverse faculty vary by discipline. Campus efforts to increase the representation of women and underrepresented minorities among the faculty have historically yielded limited progress due to several factors, including a particularly competitive labor market for these candidates and ongoing challenges related to the diversity of the faculty "pipeline."

Since 1994, the University's budgeted student-faculty ratio has been 18.7:1. However, the actual student-faculty ratio has deteriorated dramatically since the budget cuts of the early 1990s (as shown in Display III-1), currently standing at 21.7:1 systemwide and ranging from 19.3 to 25.7 on individual campuses. Improving the student-faculty ratio would permit the University to:

- offer smaller class sizes where appropriate,
- enhance the quality of the educational experience and richness of course offerings, and
- help students complete degree requirements and graduate more quickly.

A lower student-faculty ratio also increases opportunities for contact outside the classroom, guidance in internships and placements, and undergraduate participation in research and public service. Moreover, an improved ratio helps attract and retain high quality faculty who are both dedicated educators and outstanding researchers.

Although decreasing the student-faculty ratio has been an important goal of the University for many years, funding for this purpose was not available for many years during fiscal crises. One of the University's quality initiatives proposed in recent budget plans, including the multi-year framework, is to improve the student-faculty ratio over the next several years.

Maintaining the quality and quantity of the faculty is critical to both the University and the State. Although faculty numbers declined in 2010-11 and 2011-12, UC is slowly replenishing faculty ranks; totals of ladder rank faculty surpassed 2009-10 levels in 2014-15 and hiring has outpaced separations for the past three years, although, as already noted, the ratio of students to faculty remains high.

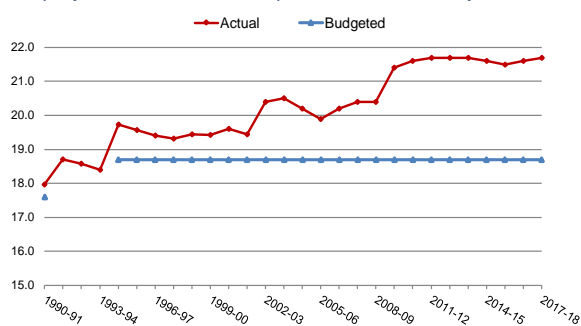
Timely Graduation

The University remains committed to ensuring that students are able to complete their degrees on time and to maintaining its excellent record of improving persistence and graduation rates among all students.

The time it takes to earn a UC undergraduate degree, measured in average number of years elapsed between matriculation and graduation, has dropped from 4.36 years for the 1996 freshman class to 4.17 years for the 2011 cohort. (Recent progress is illustrated in Display III-2.) Students may take more total units or take longer to graduate if they change majors, pursue a double major, major in a field with a higher unit requirement, or take a lighter load some terms. In recent years, campuses have worked to increase the average number of units taken during a term while reducing excess units taken over a student's career, thereby enabling students to graduate sooner and making room for additional students.

Among recent freshman cohorts, approximately 93% of students persist into the second year. Despite fiscal challenges, UC's four-year freshman graduation rate steadily improved and is 68% for the most recent cohort (graduation rate data are shown in Display III-3). Those who do not graduate in four years often require only one more academic quarter to earn their degree; 82% of the 2012 entering freshmen earned a baccalaureate degree within five years and 84% within six years. UC graduation rates far exceed the national average; among first-time

Display III-1: General Campus Student-Faculty Ratio



State cuts have led to increases in the budgeted student-faculty ratio. The University's long-term goal is to improve the ratio to 18.7:1 or lower. (Note: enrollment was not budgeted during the budget cuts of the early 1990s, so there are no student-faculty ratio data available during those years.)

students entering four-year institutions nationwide, only about 40% earn a bachelor's degree within four years and 60% within six years.

Students beginning their higher education at a community college have historically done very well after transferring to UC. Among California Community College (CCC) transfer students, 93% persist to the second year and 89% earn a UC degree within four years, taking on average 2.39 years to complete their degrees (graduation rate data for CCC transfers are shown in Display III-4). Transfer students' UC grade point averages upon graduation are about the same as those of students who entered as freshmen.

Student Satisfaction

The University measures undergraduate student satisfaction, along with a host of other indicators of students' well-being, using the University of California Undergraduate Experience Survey, or UCUES. In 2018, 79% of survey participants reported that they are very satisfied, satisfied, or somewhat satisfied with their overall academic experience at UC. Despite this positive overall rating, some distressing trends have also emerged. For example:

- A declining percentage of students state that they would choose to attend the UC campus at which they enrolled knowing what they know today.
- An increasing percentage of students report that they cannot secure their first-choice major.

- A declining percentage of students report knowing at least one faculty member well enough to request a letter of recommendation.

DIVERSITY

UC is dedicated to achieving excellence through diversity in the classroom, research laboratory, and workplace.

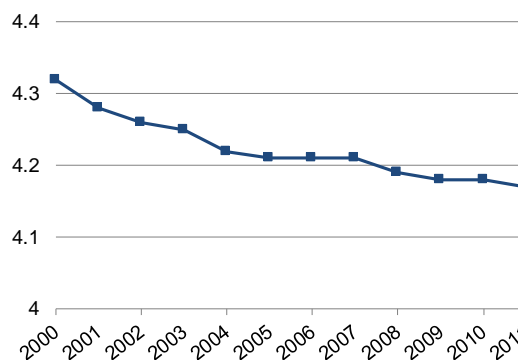
It strives to maintain a climate that welcomes, celebrates, and promotes respect for the contributions of all students and employees.

In 2007, the Regents adopted as policy the UC Diversity Statement defining diversity as the “variety of personal experiences, values, and worldviews that arise from differences of culture and circumstance. Such differences include race, ethnicity, gender, age, religion, language, abilities/disabilities, sexual orientation, gender identity, socioeconomic status, geographic region, and more” (www.universityofcalifornia.edu/diversity/documents/diversityreport0907.pdf). The value of diversity in all aspects of UC’s educational programs is fundamental to its mission as a land grant institution. A diverse University community enhances the quality of education by infusing perspectives and experiences from people of all walks of life in California and beyond, enriching and contributing to the educational, scholarship, research, and public service environment. An important aspect of this environment is the ability to take advantage of the social, cultural, and intellectual contributions enabled by having a diverse population of students, faculty, and staff. To that end, the Regents requested an annual accountability report on diversity at UC. The annual accountability reports have focused on diversity by gender, race, and ethnicity of the University community and have provided information about efforts to enhance that diversity.¹

Diversity Within the University Community

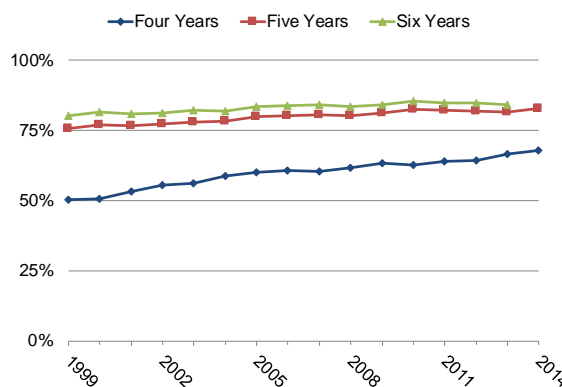
UC often describes its diversity aspirations as reflecting the diversity of California. While the University has made progress in several key areas related to diversity and inclusion, it has not kept pace with demographic changes in California, especially with the rapid growth of the

Display III-2: Time to Degree among Freshmen by Cohort



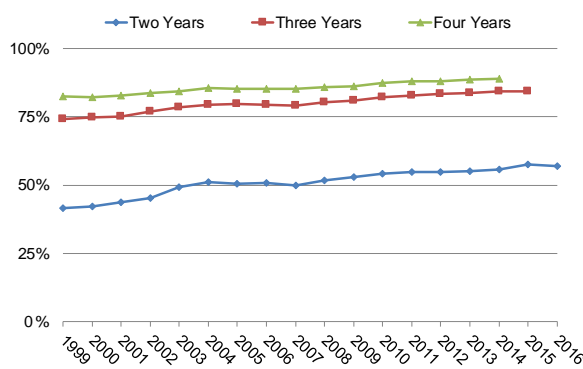
Time to degree, measured in average years elapsed between matriculation and graduation, has declined over time to 4.17 years for the most recent cohort.

Display III-3: Graduation Rates by Freshman Cohort



Nearly 70% of freshman entrants obtain their degree within four years and over 80% finish within six years.

Display III-4: Graduation Rates by CCC Transfer Cohort



CCC transfers to UC also exhibit strong graduation rates, with nearly 60% finishing in two years and 88% graduating within four years of transfer.

¹ The September 2018 item on faculty diversity is available on the UC Regents website: <https://regents.universityofcalifornia.edu/regmeet/sept18/a2.pdf>. Detailed data on diversity and other accountability measures can be found at UC’s Accountability Report website: <http://accountability.universityofcalifornia.edu/>.

Chicano(a)/Latino(a) population. Racial and ethnic diversity at the University changes slowly over time as populations change. At the undergraduate level, the population changes every four to five years, providing an opportunity for the University to become more responsive to demographic shifts in the graduating high school population. Conversely, faculty careers can last 30 to 40 years, requiring a much longer trajectory for these population shifts.

Undergraduates. At the undergraduate level, UC has made progress in expanding access to all Californians. At UC, underrepresented groups (URGs) include African American, American Indian, and Chicano(a)/Latino(a) students. In fall 1999, students from underrepresented groups comprised 17% of all undergraduates. In fall 2018, students from underrepresented groups comprised 33% of all undergraduate students. Among new California resident freshmen, students from underrepresented racial/ethnic groups have increased from 16% in fall 1999 to 36% in fall 2018. This increase reflects, in part, the increases in diversity of California's high school graduating class. Additionally, domestic CCC transfer students from URGs have increased from 18% in fall 1999 to 36% in fall 2018.

Graduate Academic Students. Similar to graduate programs across the country, UC's graduate academic programs strive to increase racial and ethnic diversity. The percentage of students from underrepresented racial/ethnic groups varied by academic discipline in fall 2018. Of the graduate academic students enrolled in social science disciplines, for example, 20.4% were from underrepresented groups in fall 2018. Of the graduate academic students enrolled in engineering, computer science, math, and the physical sciences, by contrast, 7.6% were from underrepresented groups in fall 2018. In nearly every discipline, UC graduates a higher percentage of students from underrepresented racial/ethnic groups than the average among other AAU public or private institutions.

The percentage of students who are women also varied by discipline in fall 2018, with 54.2% for social science disciplines and 34.0% for engineering, computer science, math, and the physical sciences. Figures for UC graduates in these disciplines are generally comparable to those at other AAU public or private institutions.

ONE-TIME FUNDS FOR ANTI-BIAS TRAINING

The 2018 California Budget Act included an appropriation of \$1,200,000 on a one-time basis to "contract for a two-year pilot program to provide anti-bias training for administrators, faculty, staff, and student leaders at campuses of the University of California and the California State University."

A joint University of California and California State University (CSU) working group of content experts was formed, including scholars and practitioners of anti-bias and implicit-bias trainings, to define the scope and learning outcomes of an evidence-based training program appropriate for the university populations.

The UC-CSU working group issued a Request for Proposals, inviting vendors to demonstrate their training modules and address questions. In June 2019, after a comprehensive review of all proposals, the UC-CSU working group selected the nonprofit Just Communities of Central Coast to deliver the pilot training programs. The trainings will take place between January and November 2020.

Graduate Professional Students. Among graduate professional degree programs at UC, the percentage of students from underrepresented racial/ethnic groups varied in fall 2018, with 38.8% in education to 12.4% in life sciences disciplines. In nearly every discipline, UC graduates a higher percentage of students from underrepresented racial/ethnic groups than the average among other AAU public or private institutions.

In fall 2018, the percentage of women in UC professional degree programs ranged from 75.6% in education to 37.2% in business. Figures for UC graduates in these disciplines are generally comparable to those at other AAU public and private institutions.

Faculty Diversity. The ladder rank faculty at the University of California is more diverse, on average, than the faculty at AAU public and private institutions. Among the University's eight public and private comparison institutions, UC ranks second for the percentage of women faculty, at 34.1%. Additionally, UC places second for the percentage of URG faculty and women URG faculty, at 10.2% and 4.4% respectively.

In fall 2018, 7.0% of ladder- or equivalent-rank UC faculty were Chicano(a)/Latino(a), 0.5% were Native American,

3.0% were Black/African/African American, and 17.1% were Asian or Asian American (figures include both domestic and international faculty).

Despite gains over time, ladder- and equivalent-rank faculty are still 67.3% white and 65.9% male. Diversifying faculty is a national challenge for universities, including UC. The University is committing funding and personnel to support best practices in recruiting and retaining a diverse faculty. This includes significant actions on all ten campuses such as national outreach and monitoring of recruitment efforts, implicit bias and climate enhancement training, and use of a common online recruitment system that facilitates data collection about the diversity of candidate pools and finalist lists.

The Budget Acts of 2016, 2017, and 2018 included allocations of \$2 million on a one-time basis each year for a total distribution of \$6 million to date to support best practices in equal employment opportunity. The funding was used to establish the Advancing Faculty Diversity (AFD) Program with funds awarded on a competitive basis to the campuses to support new interventions in the faculty recruitment process while being able to measure the interventions for their effectiveness in diversifying the faculty.

In 2018-19, the Office of the President supplemented the \$2 million from the State for efforts to advance faculty diversity by committing over \$400,000 to fund six projects on faculty climate and retention. Campuses proposed a variety of innovative approaches to improving climate and retention for faculty members from historically underrepresented backgrounds. These projects included institutionalizing climate within governance bodies; workshops, anti-bias training, and symposia on equity, diversity, and inclusion; cross-division and network mentoring programs; building allies among faculty members holding non-minority identities; and addressing inequitable service loads.

The Budget Acts also require the University to submit a report that includes the number of ladder-rank faculty at UC, disaggregated by race, ethnicity, and gender; and a description of the specific uses of these funds to support equal employment opportunity in faculty employment. The

most recent report on these details was submitted in November 2018. This report explained that the \$2 million in one-time funding was allocated to four campus pilot units in 2018-19, enabling the University to supplement its ongoing systemwide efforts with targeted efforts that might be transferable outside of pilot units. These units included the Life Sciences at UC Berkeley; the Schools of Natural Sciences and Engineering at UC Merced; the Department of Mathematics at UC Riverside; and campus-wide efforts at UC Davis.

Preliminary results from the 2018-19 program indicate that for all four units, the interventions supported by this funding resulted in an increase in the percentage of underrepresented group (URG) and female applicants, finalists, and hires. In addition, all four units saw significant changes in practice and conversation. A full report, including final hiring demographics and the results of the interventions, will be made available in December 2019.

The Budget Act of 2019 includes a one-time allocation of \$2.5 million “for the creation or expansion of equal opportunity employment programs.” The University welcomes this additional support from the State. In addition, the Office of the President is committing up to \$3 million towards diversifying the professoriate. Through a competitive process, 14 awards for Advancing Faculty Diversity (AFD) projects were funded in September 2019, including five focused on interventions in the faculty recruitment process and nine focused on retaining diverse faculty and improving climate in academic units. For the first time, awards included funding of new ways to create data-based indicators of diversity, equity, and inclusion; a project that includes collaboration of two campuses; and research on barriers to and strategies for improving diversity among faculty and leadership.

Staff Diversity. Among UC staff, the most diversity is seen among UC’s professional and support staff, and the least among the Senior Management Group. Despite some progress over the past decade, in fall 2018, the Senior Management Group (consisting of 175 employees) was 66.0% white and 62.6% male. In contrast, among the University’s approximately 105,000 professional and support staff, 36.6% were white and 34.1% were male.

In fall 2018, 30.9% of the University's approximately 160,000 non-academic staff were from underrepresented groups (URG), up from 25.2% URG in fall 2001. The largest increase was among Chicano(a)/Latino(a) staff, who comprised 15.7% of all staff in fall 2001 compared to 23.9% in fall 2018, followed by Asian American staff (22.5% in fall 2001 compared to 25.3% in fall 2018).

Institutional Best Practices in Diversity

Recognizing the need for and importance of advancing the diversity and inclusion of faculty, students, and staff, UC campuses and locations have implemented a wide variety of programs and initiatives. Some of these efforts have been in place for more than 30 years; some are brand new. Selected best practices are summarized below:

Undergraduate Students. UC devotes considerable resources to extensive academic and college preparation support for nearly 205,000 K-12 and community college students in 2017-18, the most recent year for which data are available. Most K-12 schools served by Student Academic Preparation and Educational Partnerships (SAPEP) programs are classified as high-needs, meaning they have high percentages of students eligible for free or reduced-price meals under the National Schools Lunch Program.

When compared with their peers from California public high schools, program participants have significantly higher UC admission rates and rates of enrollment in all three of California's public college segments. In addition, when program participants are admitted to UC, they are more likely to enroll. The University has also launched the President's Diversity Pipeline Initiative, which is described earlier in this chapter.

Graduate Academic and Graduate Professional Students. The UC-HBCU Initiative, first implemented in 2012-13, improves diversity and strengthens graduate programs by investing in relationships between UC campuses and Historically Black Colleges and Universities (HBCUs). Since its inaugural year, more than 550 HBCU scholars have participated in the program, which offers faculty-led summer research opportunities and year-round mentoring. Thus far, over 175 UC-HBCU former interns have applied to UC graduate programs and 97 have been

admitted (12 to master's programs). As of fall 2019 there are 60 Ph.D. students and four academic master's students enrolled at UC. Eight master's students have graduated, and seven fellows have completed Ph.D.s as a direct result of the program.

Medical Education. UC's Programs in Medical Education (PRIME), available at all UC medical schools, is an innovative training program focused on meeting the needs of California's underserved populations in both rural communities and urban areas by combining specialized coursework, structured clinical experiences, advanced independent study, and mentoring. As of 2018-19, UC enrolled 354 medical students in PRIME, with 64% from underrepresented groups in medicine.

Ladder Rank Faculty. As mentioned earlier, the President's Postdoctoral Fellowship Program (PPFP) is a keystone program at the University of California that supports diversification of UC faculty through financial support and career development training for postdoctoral scholars that show promise to be successful faculty in the UC system. Fellows have a demonstrated record of commitment to diversity in their research, teaching and/or outreach. The fellowship is extremely competitive, awarded to only the top 3% of applicants. In fall 2019, there are over 100 current fellows in their first and second year. At present, 226 PPFP fellows have been hired into UC tenure-track positions since 2004. As noted earlier in the chapter, UC campuses are also piloting a number of programs designed to identify best practices in faculty hiring.

Staff and Management. The University is focused on a broad range of staff diversity issues, including recruitment, retention, and promotion, leadership commitment to staff diversity at each location, and systems for ensuring that best practices in support of staff diversity are woven throughout the fabric of the University. Many campuses now offer certificate programs in diversity and inclusion. These programs are designed to offer participants an in-depth examination of diversity and differences in order to gain a greater understanding of how and why to work together to build a stronger and more inclusive campus community.

Campus Climate. UC campuses have recently been the scene of a number of events, incidents, or demonstrations that targeted marginalized groups or individuals, resulting in campus unrest and negatively affecting campus climate. The events — and UC’s responses to them — attracted local and national media attention. To guide campus officials in managing future events of this nature, UC’s Office of the President created the *Toolkit to Prepare for and Manage Major Campus Events or Incidents*, available for internal dissemination at UC campuses. The toolkit is a compilation of principles, policies and practices that can guide campus officials in managing events, incidents and/or demonstrations that have the potential of negatively affecting campus communities and climate. Information contained in the toolkit will be useful to staff and leadership in the offices of the Chancellor, Provost, Student Affairs, UC Police, communications and media relations, administration and operations, diversity and inclusion, and campus counsel.

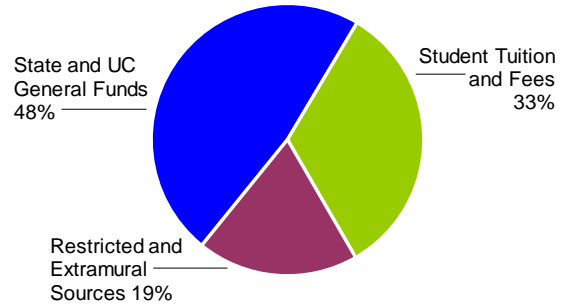
General Campus Instruction

The University of California provides undergraduate, graduate professional, and graduate academic education through the doctoral degree level and serves as the primary State-supported academic institution for research. Consistent with the California Master Plan for Higher Education, a fundamental mission of the University is to educate students at all levels, from undergraduate to the most advanced graduate level, and to offer motivated students the opportunity to realize their full potential. The University continues to offer a space to all qualified California resident undergraduates and provides programs for graduate academic and graduate professional students in accordance with standards of excellence and the growing needs of California, the fifth-largest economy in the world. To do this, the University must maintain a core of well-balanced, quality programs and provide support for newly emerging and rapidly developing fields of knowledge.

What attracts students to a research university is the opportunity to interact with faculty on the cutting edge of their field and to participate in, and even conduct their own, research. UC students are no different. In 2018, the most recent year for which these survey data are available, the University of California Undergraduate Experience Survey (UCUES) found that 84% of respondents agreed that attending a university with world-class researchers was important. The survey also found that 73% of senior undergraduates have completed or are completing a research project or research paper as part of their coursework. The close relationship between instruction and research, at both the undergraduate and graduate levels, is the hallmark of a research university.

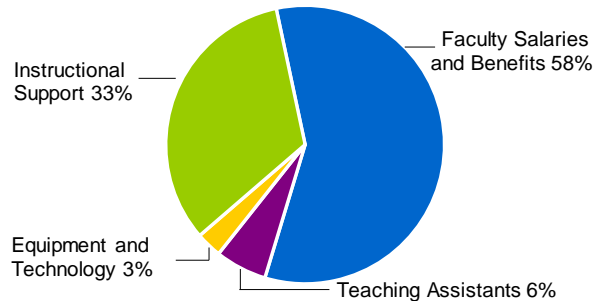
The University offers bachelor's, master's, and doctoral degrees in 847 instructional programs from agriculture to zoology and professional degrees in a growing number of disciplines. The University's Academic Senate authorizes and supervises courses offered within instructional programs, and also determines the conditions for admission

Display IV-1: 2018-19 General Campus Instruction Expenditures by Fund Source (Total: \$3.8 Billion)



Core funds (State General Funds, UC General Funds, and mandatory and professional school student tuition and fees) provide 81% of funding for general campus instruction.

Display IV-2: 2018-19 General Campus Instruction Expenditures by Category (Total: \$3.8 Billion)



Over half of expenditures in general campus instruction are for faculty salaries and benefits.

and the qualifications for degrees and credentials. UC began awarding degrees in 1870 and conferred 74,889 degrees in 2017-18.

The general campus Instruction and Research (I&R) budget includes direct instructional resources associated with schools and colleges located on the nine UC general campuses.¹ I&R expenditures totaled \$3.8 billion in 2018-19, 81% of which comes from core fund sources (State General Funds, UC General Funds, and student

¹ The San Francisco campus is primarily dedicated to the health sciences, which are discussed in the *Health Sciences Instruction* chapter of this document.

tuition and fees). Additional resources for instruction are derived from self-supporting program charges, course materials and services fees, philanthropy, and other restricted sources. Budget elements and their proportions of the general campus I&R base budget include faculty and teaching assistant salaries and benefits (64%); instructional support (33%), which includes salaries and benefits of instructional support staff (such as laboratory assistants, supervisory, clerical and technical personnel, and some academic administrators) and costs of instructional department supplies; and instructional equipment replacement and technology (3%).

UNDERGRADUATE ENROLLMENT

Undergraduate and graduate enrollments are fundamental to the teaching and research components of the University's mission. Described below are some of the expectations set in the California Master Plan for Higher Education regarding University entrance requirements, admissions procedures, and enrollment policies.

Undergraduate Enrollment Provisions in the California Master Plan for Higher Education

The University of California remains committed to the Master Plan for Higher Education as the foundation for one of the finest higher education systems in the world. The interests of the State, its citizens, and the higher education segments in California have been well served by the Master Plan for nearly 60 years.

The Master Plan calls for UC to offer access to all eligible California resident applicants to its undergraduate programs. The University establishes criteria designed to identify the top 12.5% of the State's public high school graduates and guarantees freshman admission to all California resident applicants who meet the requirements, apply on time, and choose to attend (though not necessarily at the campus or in the major of choice). In addition, the Master Plan calls for UC to guarantee a place for all California Community College (CCC) transfer applicants who meet the relevant admissions requirements. The Master Plan calls for the State to provide adequate resources to enable UC to accommodate all California resident students who are eligible and likely to apply.

UNIVERSITY UNDERGRADUATE ENROLLMENT PROJECTIONS

UC's enrollment projections are based on consideration of several factors, including:

- Department of Finance projections of high school graduates and improvements in high school graduation rates;
- assumptions about the proportion of high school graduates who actually enroll in the University (the University establishes criteria designed to identify the top 12.5% of California's public high school graduating class; in the last ten years, 7% to 8% of California's public high school graduates have enrolled);
- assumptions about community college transfer rates, consistent with the University's goal to continue to improve these rates;
- need to replace college educated workers as baby boomers move into retirement; and
- increases in graduate academic and graduate professional enrollment required to meet workforce needs.

Legislative reviews of the Master Plan have maintained its basic tenets, explicitly reaffirming the access guarantee for all eligible students. Indeed, section 66202.5 of the California Education Code states: "The University of California and the California State University are expected to plan that adequate spaces are available to accommodate all California resident students who are eligible and likely to apply to attend an appropriate place within the system. The State of California likewise reaffirms its historic commitment to ensure that resources are provided to make this expansion possible, and shall commit resources to ensure that [eligible] students ... are accommodated in a place within the system."

History of State Support for Undergraduate Enrollment Growth

Historically, the State has provided sufficient funds to support enrollment growth as it occurred at UC. Specifically, the State provided funding for each additional FTE student added to the University's budgeted enrollment level based on an amount known as the marginal cost of instruction. This cost is intended to reflect the level of resources needed to educate each additional student at UC's historical level of quality and is calculated using an agreed-upon methodology with the State. Funding for

enrollment growth at the marginal cost of instruction was included in the 2005-06, 2006-07, and 2007-08 budgets.

The State's ongoing fiscal woes led to reductions in support for UC – and no new funding for enrollment growth – during 2008-09 and 2009-10. In keeping with its commitment to the California Master Plan and California undergraduate applicants who had worked hard to become eligible for admission, the University made a decision in 2008-09 to ask that campuses, to the best of their ability, implement the enrollment increases that had been planned before the onset of budget cuts. This enrollment growth, including growth of planned health science programs, was funded through an internal redirection of existing resources. As a result of this action, and due in part to increased nonresident enrollment, the University's total enrollment continued to grow after 2008-09 (see Display IV-4). The State budget provided \$51.3 million to support 5,121 FTE students at UC at a marginal cost rate of \$10,012 in 2010-11 (although a few weeks after the budget was signed, UC was informed of the State's intent to cut \$500 million from its base – a cut that eventually rose to \$750 million – so in essence, this enrollment growth was only temporarily funded).

After four consecutive years of no new funding for enrollment growth (from 2011-12 through 2014-15), the State once again began to include undergraduate enrollment growth funding in the University's budget in 2015-16 and 2016-17, albeit at levels below the State's traditional marginal cost rate. UC redirected funds from other programs to make up the difference. In 2017-18, the State directed the University to enroll at least 1,500 additional undergraduates in 2018-19 by internally redirecting existing funding. State funding for the University in 2018-19 included support for 500 new California resident undergraduates in 2018-19 (in addition to the 1,500 new California undergraduates funded by an internal reallocation of University resources). The Budget Act of 2019-20 included \$49.9 million to support enrollment of 4,860 additional California resident undergraduates over 2018-19 enrollment levels by 2020-21.

The resumption of State support for undergraduate enrollment growth is a positive development. Nevertheless, actual California resident enrollment growth has far

MARGINAL COST OF INSTRUCTION

The marginal cost of instruction formula includes:

- salary and benefits for additional faculty positions (based on the assumption of a budgeted student-faculty ratio of 18.7:1);
- related instructional support such as clerical and technical personnel, supplies, and equipment;
- support for teaching assistant positions;
- institutional support; and
- support for operation and maintenance of plant, libraries, and student services.

Activities that the State has historically not supported, such as student health services, plant administration, executive management, and logistical services, are excluded. The methodology identifies the State subsidy provided for the cost of education as well as the portion of this cost that is supported by student tuition and fees. To the extent that the methodology is based on expenditures, the marginal cost rate does not capture the full costs of instruction.

outpaced the levels supported in recent Budget Acts. Undergraduate enrollment growth beyond the levels supported by State funds creates an ongoing challenge to campuses as they strive to maintain the quality of a UC education.

Demographic details about the University's undergraduate population can be found in Displays IV-8 through IV-13.

Current Context for Undergraduate Enrollment Growth

The University, with the support of the State, has achieved an extraordinary level of enrollment growth in recent years. The growth in total enrollment of California resident undergraduates between fall 2015 and fall 2016, for example, was the largest one-year increase since the end of the Second World War. This expanded access has benefited both California high school graduates and California Community College students, who applied to – and enrolled at – the University in record numbers.

This growth, while a boon to California students seeking to enroll at UC, has created challenges for campuses. These challenges have resulted in part because actual enrollment growth far exceeded the funded enrollment growth targets specified in the Budget Acts of 2015 and 2016.

Respectively, those Acts provided \$25 million in State support for enrollment growth of 5,000 California resident

undergraduates in 2016-17 over 2014-15 levels and \$18.5 million in State support for enrollment growth of 2,500 additional California resident undergraduates in 2017-18 compared to 2016-17. In both cases, funding was granted by the State after the University demonstrated to the Director of Finance that it would achieve, at a minimum, these enrollment targets.

Both Budget Acts provided funding on an all-or-nothing basis: UC was to receive no enrollment growth funding if it fell short of the specified goal, yet would receive no additional funding for enrolling students in excess of the goal. In order to avoid the prospect of receiving no State funds for enrollment growth, campuses made the rational decision to err high when trying to achieve their enrollment growth targets.

This tendency, combined with the often unpredictable nature of enrollment management, resulted in estimated enrollment growth of approximately 10,100 students between 2014-15 and 2017-18, or 2,600 more than the 7,500 students for which partial funding was provided in the Budget Acts of 2015 and 2016. In lieu of State support to subsidize the cost of educating these students, campuses have instead diverted funds from other pressing budgetary needs to accommodate the larger-than-expected enrollment of California resident undergraduates.

Although the University envisioned sustaining expanded access by increasing total California resident undergraduate enrollment by at least 10,000 students within four years (from 2014-15 through 2018-19), it ultimately enrolled over 10,000 new students in just three years (by 2017-18). Display IV-3 illustrates the extent to which the enrollment growth of California resident freshmen and California resident transfer entrants in 2016-17 and 2017-18 mark departures from that of the previous five years and Display IV-4 shows how total University enrollment has grown since 2006-07. Actions taken for 2016-17 and 2017-18 have implications for future years – as classes of students coming in are larger than classes graduating, total enrollment grows, even if new student enrollment does not change. Moreover, in 2018-19, UC exceeded its budgeted growth of 2,000 California resident undergraduate FTE. UC is also projected to grow by about 3,500 California resident undergraduate

CALIFORNIA'S MASTER PLAN FOR HIGHER EDUCATION

In exchange for the higher education segments agreeing to differentiate functions and admissions pools and to reduce programmatic duplication, the State government and taxpayers agreed to provide support for higher education in the form of California's Master Plan.

Differentiation of function

- UC (10 campuses) – high-cost doctoral education, highly-specialized professional schools
- CSU (23 campuses) – bachelor's and master's level education
- CCC (115 community colleges) – lower division and basic skills education and workforce training

Differentiation of admissions pools coupled with principle of universal access

- UC and CSU are to take all eligible students in the top one-eighth and one-third, respectively, of California public high school graduates.
- CCCs are to admit any student capable of benefiting from instruction.
- Any CCC student has the opportunity to become eligible for four-year instruction.
- UC and CSU give eligible CCC transfer students priority in admission.

Affordability

- A commitment to the principle of tuition-free education for California residents has been replaced in the last few decades with moderate tuition accompanied by robust financial aid policies.
- Student aid helps ensure finances are not a barrier to higher education and that State Cal Grants are portable to any institution in the state.

FTE in 2019-20 – well over half the 4,860 FTE funded for 2019-20 and 2020-21 in the 2019 Budget Act.

UNDERGRADUATE ADMISSIONS

In spite of increasing financial pressures in recent years, the University has maintained its commitment to the Master Plan for Higher Education to provide a place on at least one of the UC campuses for all eligible undergraduate California applicants who wish to attend. In recent years, applications for freshman admission from California high school seniors have increased substantially and the University has grown to accommodate all interested eligible students. UC received over 120,000 applications from California high school seniors for fall 2018 admission, or 7.3% more than in the

prior year. Campuses received applications for fall 2019 admission from nearly 116,000 California high school seniors, a 3.4% decrease relative to 2018, which may reflect the slight decrease in high school graduates projected by the California Department of Finance, among various other reasons. The volume, however, continues to reflect the high level of demand among California's high school graduates for access to the University of California.

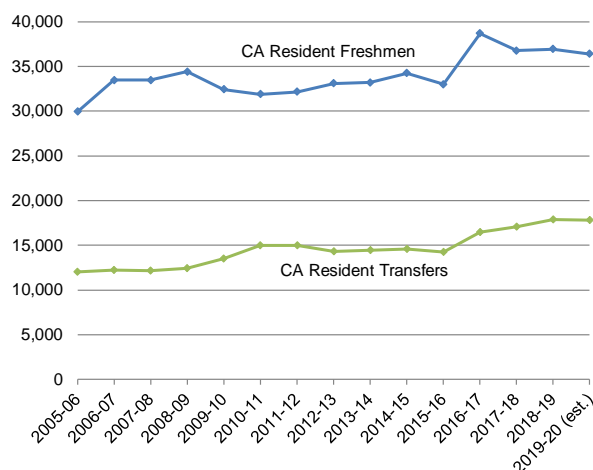
Admission Policies

The University strives each year to meet its commitment under the Master Plan to provide access to all eligible California high school graduating seniors who seek to attend UC. The University also strives to identify and enroll, on each of its campuses, a student body that demonstrates high academic achievement and exceptional personal talent, and that encompasses the broad diversity of backgrounds characteristic of California. The impact of the University's admissions policy is continuously monitored and reviewed to ensure that the University receives applications from a wide range of students displaying high academic achievement and exceptional personal talent.

Eligibility for guaranteed admission. There are two paths to attaining guaranteed admission to UC for California residents: through the Statewide Context, based on grades and test scores placing an applicant in the top 9% of graduates statewide, and through the Local Context, based on a class rank placing an applicant in the top 9% within his/her high school. Both guarantee a space at UC, though not necessarily to the campus of choice. Consistent with past practice, California residents who are guaranteed admission but are not accepted by any campus to which they apply are offered admission through the referral pool at one or more campuses with additional capacity. Currently, the Merced campus is the only campus offering admission through the referral pool. California resident applicants who have met all minimum requirements for freshman admission but are not identified in the top 9% in the state or within their high schools are entitled to review of their applications.

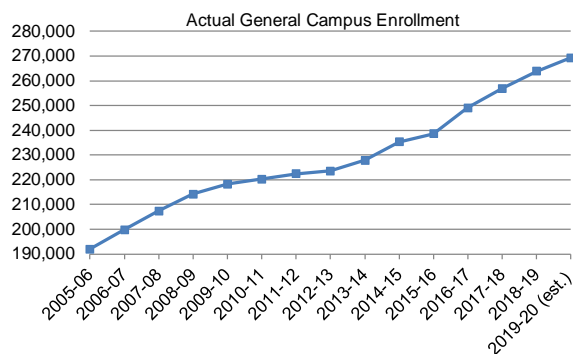
Comprehensive Review. The University's "comprehensive review" process, in place since 2002, ensures the admission of highly qualified students by allowing UC

Display IV-3: California Resident Freshman and California Resident Transfer Entrants (Fall Term)



After years of relatively flat enrollment growth among new California resident freshmen and California resident transfers, the University once again began to increase enrollments of these populations of students. The State called upon the University to enroll 5,000 additional California resident undergraduates in 2016-17 relative to 2014-15 enrollment, resulting in the dramatic increase in California resident freshman entrants that year.

Display IV-4: Total General Campus Enrollment (FTE)



Total (undergraduate and graduate) general campus FTE enrollment has grown substantially since 2005-06.

campuses to consider a variety of academic and other qualifications that all students present on the application. Data show that students admitted under comprehensive review present increasingly accomplished credentials.

All freshman applicant records are reviewed not only for their grades, test scores, and other academic criteria – important baseline indicators of academic potential – but also for additional evidence of such qualities as leadership, intellectual curiosity, and initiative. This policy sends a

strong signal that UC is looking for students who have achieved at high levels and, in doing so, have challenged themselves to the greatest extent possible.

As part of its service to the State, UC is responsible for certifying whether courses offered in California's high schools qualify as "A-G" courses, which are required for eligibility to both the UC and the California State University (CSU) systems. For the 2018-19 academic year alone, UC reviewed almost 28,000 high school courses for UC and CSU eligibility. UC's A-G course lists include over 185,000 approved courses from approximately 2,500 high schools and programs.

In recent years, a great deal of attention has been devoted to creating curricula that combine college-preparatory work with Career Technical Education (CTE). Courses that combine academic content knowledge with practical or work-related applications may be eligible for A-G approval. Through the work of the University of California Curriculum Integration (UCCI) initiative, which focuses on assisting high schools with the development and implementation of integrated courses that unite academic study with CTE, 600 institutions across California offered more than 510,000 public high school students the opportunity to enroll in A-G-approved UCCI courses in 2018-19.

TRANSFER FROM CALIFORNIA COMMUNITY COLLEGES TO UC

For those students who choose not to attend a four-year university directly out of high school, the ability to transfer from a California Community College (CCC) to a four-year institution helps sustain the State's commitment to educational opportunity for all. The California Master Plan prescribes a ratio of 60:40 in upper division to lower division undergraduate students in order to have ample upper division spaces for CCC transfer students. This 60% upper division proportion would be achieved if UC enrolled one upper division transfer student for every two new freshmen, assuming all students proceeded in lockstep.

Many new freshmen attain upper division status in fewer than two years, however, through the application of Advanced Placement (AP) and other college credit. As a result, UC has been able to meet the 60:40 ratio without enrolling as many transfer students as originally envisioned

TRANSFER APPLICANTS

California resident transfer applicants who meet one of the following paths are guaranteed a comprehensive review of their application for admission.

- Completion of at least 60 semester/90 quarter units of transferable coursework with a 2.4 GPA, including seven specific transferable courses with a C grade or better in each, or
- Completion of an approved Associate Degree for Transfer at a California Community College, or
- Completion of an approved UC Transfer Pathway.

in the Master Plan. To ensure consistency with the Master Plan, UC's Commission on the Future recommended in 2011 that UC instead seek to reach the 2:1 ratio, resources permitting. The Budget Act of 2017 made \$50 million contingent upon the University demonstrating "a good faith effort" and taking "all possible actions" to attain a ratio of "at least one entering transfer student for every two entering freshman students beginning in the 2018-19 academic year" at each undergraduate campus except Merced. The University took important steps to advance this goal, including extending the application deadline for transfer applicants in order to increase the applicant pool, setting aggressive transfer enrollment targets for each undergraduate campus, and signing a Memorandum of Understanding with the California Community College Chancellor's Office (CCCCO) to implement a guarantee of transfer admission for all qualified CCC applicants. Collectively, these efforts satisfied the requirements in the Budget Act.

Admission as a Transfer Student. In 2018-19, UC set a record by enrolling approximately 18,000 California resident transfer students. UC is projected to surpass that record in 2019-20 by enrolling more than 18,000 California resident transfer students, the largest California resident transfer class in the University's history.

Transfer students are a crucial part of UC. In December 2017, President Napolitano convened the Transfer Task Force to analyze the current scope of transfer admission options for prospective UC applicants, with a goal of attaining more and better-prepared transfer students by ensuring greater transparency of UC's requirements for successful transfer. Then in April 2018, the University of

California and the California Community Colleges established a joint agreement aimed at increasing the number of academically prepared community college students who transfer to UC and earn a bachelor's degree. Under the Memorandum of Understanding (MOU), students who complete one of UC's Transfer Pathways – a set of course expectations a student can take to prepare for a particular major on any of UC's nine undergraduate campuses – and achieve the requisite grade point average will be guaranteed a place within the UC system. Further information is available at:

<https://admission.universityofcalifornia.edu/admission-requirements/transfer-requirements/transfer-pathways/>.

The new systemwide transfer admission guarantee program launched in fall 2019 and provides students with the security of an admissions guarantee to a UC campus of choice, strong major preparation for a competitive admissions edge at any campus, and a solid foundation for academic success and timely degree completion after transfer. As outlined in the MOU, this program is only one of a series of efforts to help community college students, especially those from disadvantaged backgrounds, gain access to the University.

Among transfer students admitted to the University, the vast majority enter at the junior level. In 2012, the UC Academic Senate approved changes to minimum transfer eligibility that respond to the development of new associate degrees for transfers from CCCs.

All UC campuses are open to new transfer students for each fall term. CCC transfer applicants who are California residents and who have met UC's minimum requirements and completed lower division major courses are given priority in transfer admission at all campuses. Under the 2018 MOU with the California Community College system, students have a route to guaranteed admission to the UC system based on completion of a UC Transfer Pathway.

As with freshman applicants, campuses use comprehensive review criteria for transfer applicants to select students for admission to majors and campuses. Selection criteria at campuses with more eligible applicants than spaces available include academic factors such as major preparation, including the completion of a UC

Transfer Pathway, as well as evidence of such qualities as motivation, leadership, and intellectual curiosity.

Transfer Advising. In order to promote the transfer process, the University provides admission advisors who regularly travel to CCCs to meet with students and staff regarding transfer admission and lower division coursework preparation requirements. Efforts are focused on CCCs with high numbers of educationally disadvantaged students and historically low transfer rates to UC.

To assist students preparing for transfer, UC developed the online Transfer Admission Planner (UC TAP), which allows students to begin tracking their completed coursework at CCCs in their first year and provides immediate feedback on their progress towards transfer. Furthermore, the tool allows UC and CCC counselors to track and communicate with potential transfer students. Additionally, UC campuses have transfer centers and advisors available to assist prospective and new transfer students who enroll at UC.

Course Articulation. To plan for transfer, students must know how the courses they take at a CCC will apply toward a degree at a particular UC campus (i.e., transfer articulation). Transfer course articulation at UC falls into two categories:

- **Universitywide Articulation.** Transferable Course Agreements, reviewed by the UC Office of the President, designate which courses can be transferred for unit credit at any UC campus and meet University transfer admission requirements.
- **Campus-specific Articulation.** Each UC campus designates which courses at the community college are comparable to courses taught at the UC campus in a specific major program and will be accepted as transfer credit toward the University's requirements.

CCC students have two primary tools to navigate the transfer path: 1) ASSIST, the official repository of articulation information for California's public colleges and universities, which houses more than 20 million articulation reports for the CCC, CSU, and UC systems to guide transfer students on how courses they complete at a community college transfer to four-year campuses; and 2) the UC Transfer Pathways Guide, an online resource that shows prospective CCC transfers which UC-transferable courses from ASSIST meet the specific course

expectations of a given UC Transfer Pathway. More information is available at the following site:

<https://pathwaysguide.universityofcalifornia.edu/>.

UNDERGRADUATE NONRESIDENT ENROLLMENT

UC's priority is to enroll all eligible California residents for whom the State has provided funding. The California Master Plan for Higher Education calls upon UC to offer a space to, and the State to fund, all eligible California resident applicants at both the freshman and transfer levels. Campus enrollment targets for California residents are established on a university-wide level based on available State funding and campus growth plans.

Just as other forms of diversity enhance the educational experiences of students, California's dependence on an increasingly global society and economy requires geographic diversity among the student body. Nonresident students are essential to the University, contributing to the academic quality and educational experience of all students and enhancing the diversity of backgrounds and perspectives on the campuses at which they enroll. Their contributions help prepare all UC students to live and work effectively in an increasingly global world. Nonresident enrollments also help grow and sustain the University's global reach, promoting new opportunities for students and faculty.

Until 2011-12, UC enrollment of undergraduate nonresidents was about 5% of total undergraduate enrollments across the system. With the onset of the Great Recession, UC began to increase the enrollment of nonresidents in addition to continuing its commitment to resident undergraduate enrollment. For 2019-20, the systemwide total of undergraduate nonresidents is projected to be 37,926 FTE, or 17.7% of total undergraduate enrollment. UC continues to enroll a much lower percentage of nonresident undergraduate students compared to its public peer institutions. For example, at the University of Michigan and the University of Virginia, nonresidents comprise 45.1% and 31.1%, respectively, of undergraduates.

Nonresident enrollment at UC has increased in recent years primarily to help campuses address major funding shortfalls related to unprecedented cuts in State funding.

Nonresident undergraduates pay \$29,754 more than California residents in Nonresident Supplemental Tuition, providing extra revenue that enables UC to improve educational programs for all students. Among other purposes, Nonresident Supplemental Tuition revenue is used to help recruit and retain high-quality faculty, mount additional courses that help lower class sizes and expand the breadth of offerings, expand library collections and services for students, renew instructional equipment and technology, and otherwise help to ameliorate the challenges to academic quality described earlier in this chapter.

Many nonresident students choose to stay in California after graduation from UC. According to California Employment Development Department data (which exclude federal employees and those who are self-employed), about half of UC domestic nonresident undergraduates and 12% of international undergraduates remain in California for two or more years after graduating. Overall, around 30% of nonresidents are employed in California initially after completing their UC degrees. The State itself reaps benefits from the contributions to California industries of talented and highly qualified nonresident UC graduates. As discussed in the *UC's Role in the State of California* and *Health Sciences Instruction* chapters of this document, California is in desperate need of college-educated workers in many industries. Nonresidents who stay in California after earning their degree at UC bolster the pool of highly educated workers in California and make significant contributions to the State economy.

As part of the conditions set by the Legislature for receiving funds to support enrollment growth in 2017-18, the Budget Act of 2016 called upon the University to adopt a policy on enrollment of nonresident students. The UC Board of Regents adopted such a policy in May 2017, reaffirming UC's historic commitment to California residents by limiting the proportion of out-of-state and international students at its nine undergraduate campuses. The policy caps nonresident enrollment at 18% or, for campuses that enrolled a higher percentage in 2017-18, their percentage from 2017-18. The policy will be reviewed, at a minimum, once every four years to ensure that nonresident enrollment

continues to enhance the academic experience, access, and affordability for California resident students.

GRADUATE STUDENT ENROLLMENT

Graduate education and research at UC have long fueled California's innovation and development, helping establish California as the fifth-largest economy in the world. Indeed, UC is charged by the California Master Plan for Higher Education with the responsibility to prepare professional and doctoral students to help meet California's and the nation's workforce needs.

Over the last 50 years, however, while well-justified attention has been paid to accommodating undergraduate enrollment growth, both for the baby boomers and for their children, graduate enrollment growth has not kept pace with that of undergraduates. Despite high-quality programs and many applicants, growth in graduate programs has been limited due to the lack of State support, creating an imbalance in University programs and preventing the University from keeping pace with growing workforce needs.

Since 1967-68, UC undergraduate enrollments have grown dramatically, from 59,000 FTE to an estimated 230,700 FTE in 2019-20, or more than 290% over 50 years. General campus graduate enrollment has grown at a much slower rate, from approximately 22,400 to an estimated 38,600 FTE in 2019-20, only 72%, during the same period (see Display IV-5).

As a consequence of this imbalance, the proportion of graduate students decreased from 26.3% of general campus enrollment in 1969-70 to an estimated all-time low of 14.3% in 2019-20 (see Display IV-6).

The graduate student percentage of total enrollment has declined in recent years though graduate enrollments in raw numbers have risen slightly. (An increase in graduate professional students was partly offset by a decrease in graduate academic students.) UC's enrollments of graduate academic and graduate professional students (including health sciences and self-supporting enrollments) is about 21% of total UC enrollment, while among other Association of American Universities (AAU) institutions, approximately 32% of public and roughly 65% of private enrollments were graduate students. As Display IV-7 illustrates, UC's total

IMPORTANCE OF STATE FUNDING

Accommodating enrollment in recent years without sufficient resources has affected students by eroding UC's traditional high-quality academic experience.

For students, the dilution of resources potentially means fewer course offerings, less access to modern instructional equipment, larger class sizes, reduced interaction with top faculty, longer waits for student services, longer time-to-degree, fewer student jobs, and fewer library holdings and services relative to the number of students enrolled. This negative impact comes at a time when students are being asked to cover a greater share of costs through tuition and fees.

For faculty, the impact is similar. As funding remains constrained, fewer competitive offers can be made to new faculty. Existing faculty must manage the needs of ever-larger classes, with less assistance from additional faculty and graduate students and less time for research or public service. Working with outdated equipment in unmaintained buildings, faculty morale suffers and opportunities at other institutions become more attractive. If top faculty leave, UC's quality will suffer.

graduate percentage is lower than the average among all of UC's eight comparison institutions.

UC has fallen behind in graduate enrollment for several reasons. Because of State budget constraints in the 1980s and 1990s, undergraduate growth was prioritized to ensure access to all eligible undergraduates choosing to attend UC. But graduate enrollment growth has also been slowed in many cases by the inability of departments to secure adequate and competitive student financial support. Higher education norms dictate that programs provide funding to support their Ph.D. students. Competitive funding packages are critical to attract top-quality students.

Graduate students are critical to the State's economic, social, and cultural development. In addition, UC graduate students play a vital role as future faculty in higher education in California, and help enhance the quality of the instructional and research enterprise while enrolled at UC.

Diversity in Graduate Education

UC is committed to training an academic graduate population that reflects the diversity of the state and nation. African American/Black students are extremely underrepresented in UC graduate and professional

programs. The five-year average (2014-2018) for enrollment of African Americans in UC academic doctoral programs is 3.2%.

In order to enhance the pipeline of underrepresented students who earn advanced degrees, in 2011 UC launched an initiative that provides fellowships to UC Ph.D. students who participated in the UC-Historically Black Colleges and Universities (HBCUs) Initiative. The UC-HBCU Initiative seeks to improve the representation of HBCU alumni in UC graduate programs, particularly Ph.D. programs, by investing in relationships and projects with HBCU students and faculty. Thus far, over 175 UC-HBCU former interns have applied to UC graduate programs and 97 have been admitted (12 to master's programs). As of fall 2019 there are 60 Ph.D. students and four academic master's students from this program enrolled at UC. Eight master's students have graduated, and seven fellows have completed Ph.Ds. as a direct result of the program.

A diverse faculty is a crucial part of any strong research institution. The University of California President's Postdoctoral Fellowship Program (PPFP) offers postdoctoral research fellowships, professional development, and faculty mentoring to outstanding scholars across fields whose research, teaching, and service contribute to diversity and equal opportunity at UC. In addition, UC is working to increase the number of PPFP fellows hired as UC faculty at the completion of their fellowships. Since 2004, 226 PPFP fellows have been hired into tenure-track positions at University of California campuses. For a description of these and other efforts to increase diversity among UC's faculty, see the *Cross-Cutting Issues* chapter of this document.

History of State Support for Graduate Student Enrollment Growth

Graduate enrollment must increase to complement dramatic undergraduate growth, to support faculty in the research mission of the University, and to help with the teaching and mentoring associated with additional undergraduates. To that end, the University's 2016-17 budget plan requested an additional \$6 million in State General Funds above the base budget increase to support the enrollment of 600 additional graduate students by

2016-17. Although the State did not fund this request, it remained a high priority for the University.

In an effort to keep pace with the significant growth in undergraduate student enrollment in 2016-17, and in anticipation of further growth in 2017-18, the 2017-18 budget plan requested \$9 million to support graduate student enrollment. Ultimately, the 2017-18 Budget Act granted the University \$5 million for graduate student enrollment growth (500 students). This augmentation was a welcome reinvestment from the State in graduate student enrollment growth, which is a defining characteristic of the University as the State's research institution.

The University requested \$5 million of new permanent funding to support 500 additional graduate students in 2018-19. The final 2018-19 Budget Act provided one-time funding for general University needs, but included no permanent funding for graduate enrollment growth. The 2019-20 Budget Act, by contrast, provided \$10 million in permanent funds to continue support of 2018-19 enrollment growth. These funds were sufficient to address only a portion of the University's undergraduate and graduate students that campuses enrolled in 2018-19 above previously funded levels.

Graduate Education and the State's Economy

UC graduate education and research have a long history of fueling economic development in California. UC graduate education and research spawned the biotechnology industry, and UC graduates have been drivers in the development of the electronics industry, particularly in communications and semiconductors.

UC graduate programs directly contribute to California's research and development-intensive industry sectors by supplying highly trained alumni and attracting industry to California. Companies in knowledge-based industries tend to form clusters around major universities to take advantage of access to the pool of specialized workers and to benefit from knowledge transfers from the concentration of research, innovation, and specialization.

In the future, California's economy will depend even more on high-tech industries. Stem cell research, environmental research and innovation, global health care delivery, and

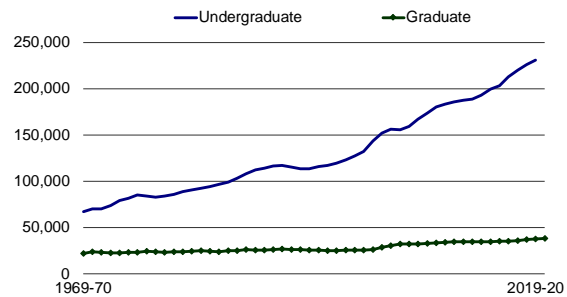
energy research will have significant impacts on the health and economy of California and the world.

All sectors of California’s economy will need many more highly educated workers — engineers, scientists, business entrepreneurs, and others whose innovations will drive California’s prosperity. In keeping with its charge under the Master Plan, the University will play a key role in helping to meet the need for these technically and analytically sophisticated workers. The looming retirement of highly-educated workers in the large baby boomer generation and the declining in-migration of educated workers from other states and nations create additional significant challenges for California’s economy. Growth in UC’s graduate programs would help meet the need for more science and technology professionals.

UC’s contribution toward fulfilling the State’s need for intellectual resources is not limited to science, engineering, and health care. In addition to the needs of a technology-based economy, California and the nation face many social challenges that require highly-educated individuals to analyze and solve problems as they shape California’s future. UC graduate programs in the arts, humanities, social sciences, and professional fields continue to serve these needs.

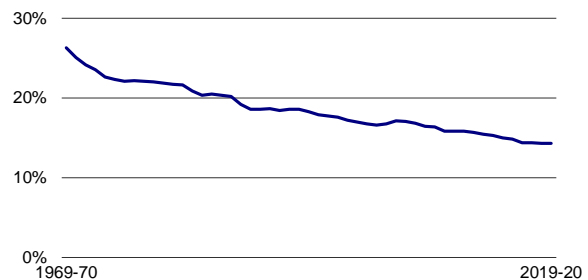
- Professional and managerial jobs, such as business managers, marketing specialists, software developers, engineers, and research analysts, are among California’s fastest growing occupations.² These jobs typically require at least a bachelor’s degree and often a master’s degree or doctorate.
- UC prepares highly skilled and creative school administrators, architects, lawyers, public health and public policy analysts, social workers, urban planners, and other professionals who add to the State’s economic and social well-being.
- Creative industries in California, such as entertainment and digital media, also contribute to the State’s economic growth. According to the Bureau of Economic Analysis (BEA), arts and entertainment contributed \$97.19 billion, or 3.5%, to California’s gross domestic product in

Display IV-5: Undergraduate and Graduate General Campus FTE Enrollment



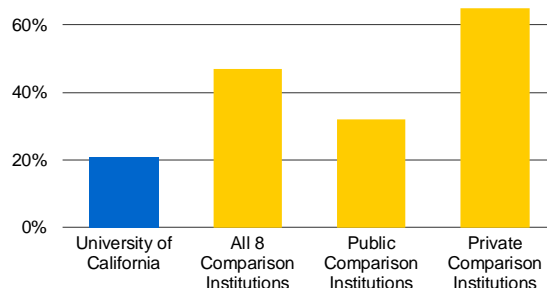
Since the 1960s, UC’s undergraduate enrollment has grown rapidly, but graduate enrollment has not kept pace. While undergraduate enrollment has grown over 270%, graduate enrollment has only grown about 70%.

Display IV-6: Graduate Students as a Percentage of General Campus Enrollment



The proportion of graduate enrollment on the general campuses has fallen from over 26% in the late 1960s to below 15% in recent years.

Display IV-7: Proportion of Graduate Enrollment at UC and Comparison Institutions



In fall 2017 (the most recent year for which comparison institution data are available), 21% of total UC enrollment was graduate academic and graduate professional students (including health sciences and self-supporting enrollments), compared to 32% at its four public comparison universities and 65% at its four private comparison universities.

² Employment Development Department. “Top 100 Fastest Growing Occupations in California, 2014-2024.” *State of California*. 2018. Web. <http://www.labormarketinfo.edd.ca.gov/OccGuides/FastGrowingOcc.aspx>.

2017.³ Alumni of UC's graduate programs are represented in many sectors of the arts world, leading and building programs and creating new ideas. California's entertainment and digital media industries are thriving precisely because of the many writers, musicians, visual artists, and actors the University trains.

Graduate Students and Higher Education

UC graduate students play a critical role in higher education in California, both as future faculty at UC, CSU, and other California colleges and universities, and as teaching and research assistants while in graduate school. Both UC and CSU depend heavily on the graduates of UC's Ph.D. programs: nearly a quarter of UC and CSU tenure-track faculty members have a doctoral degree from UC.

Growth in graduate enrollments is necessary to maintain excellence in instruction and research. New faculty members are attracted to UC in part because of the high caliber of graduate students with whom they can work. In 2018-19, UC attracted substantial percentages of students with prestigious fellowships: 12% of NSF fellowship recipients and 37% of Ford fellowship recipients chose to attend UC. Graduate students also work as teaching assistants, helping to meet UC's overall instructional needs, though their primary importance lies in the ways they complement faculty roles: leading small discussion groups and laboratory sections, offering a wider range of perspectives and teaching delivery modes, and serving as near-peer mentors for undergraduates.

Graduate students are vital to UC's discovery and innovation enterprise. Especially in the sciences and engineering, the research process entails teamwork, and graduate student researchers, as key members of these teams, have been central to the creative breakthroughs that have made UC one of the world's greatest universities. Graduate students further amplify UC's research contributions by supervising and mentoring undergraduates engaged in research projects, thus enabling greater involvement of undergraduates in primary research activities.

In the 21st century, access to a graduate education is becoming increasingly necessary to engage in analytic work across fields. For this reason, many undergraduates will seek to further their education beyond the baccalaureate level in the coming years. Following the growth of high school graduates during the last decade, California's 25-34 year-old population will grow about 7% between 2018 and 2028. As a result, demand for graduate education will likely increase.

It is likely that a portion of this growing demand will be attributable to the University's own baccalaureate degree graduates. Just over 68% of UC undergraduates state a desire to earn a graduate or professional degree after they graduate from UC.

UC must also be particularly vigilant about ensuring access to graduate education for historically underrepresented groups, including individuals from disadvantaged socioeconomic backgrounds. Within the next 10 to 15 years, underrepresented groups will be the majority of California's population. For California to meet its growing workforce needs and to maximize the potential of so much unrealized talent within the State, UC must help far more students pursue graduate study. Graduate student support is a key factor in enrolling additional graduate students. The *Student Financial Aid* chapter of this document discusses graduate student support in further detail.

³ Bureau of Economic Analysis. "Real Value Added to The Gross Domestic Product (GDP) of California in 2017, by Industry (in Billion Chained 2009 U.S. Dollars)." *Statista - The Statistics Portal*. Statista. May 2018. Web. <https://www.statista.com/statistics/304869/california-real-gdp-by-industry/>.

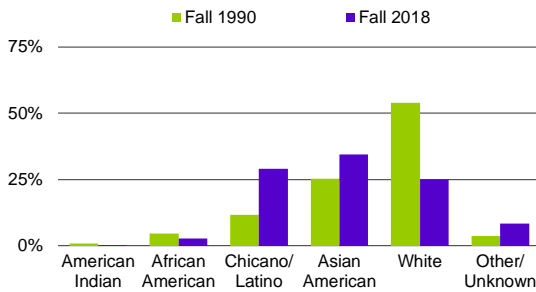
Display IV-8: Characteristics of Fall 2018 Undergraduate Students

Headcount enrollment	222,493
Female	54%
Underrepresented group	29%
First-generation college students	41%
Full-time students	97%
California residents	82.13%
Domestic nonresidents	5.89%
International students	11.98%
Upper division	62%
Lower division	38%

Display IV-11: Characteristics of Fall 2018 Graduate Students

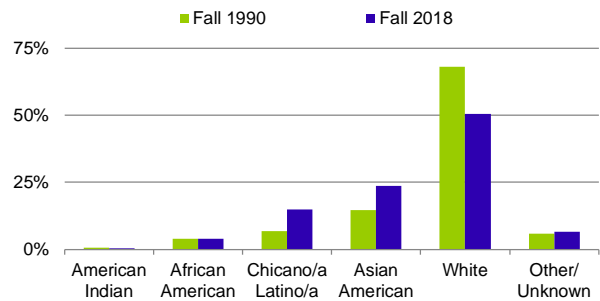
Headcount enrollment	57,710
Female	47%
Underrepresented group	15%
Doctoral students	47%
Academic master's students	13%
Professional students	39%
California residents	55%
Domestic nonresidents	17%
International students	28%

Display IV-9: Distribution of Domestic Undergraduate Students by Race/Ethnicity



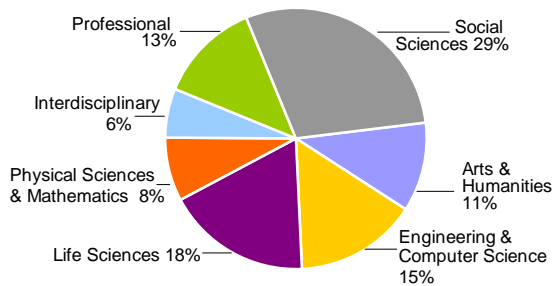
Since fall 1990, the proportion among UC undergraduates of Chicano(a)/Latino(a) students has risen 250% and the proportion of Asian American students has risen 136%.

Display IV-12: Distribution of Domestic Graduate Students by Race/Ethnicity



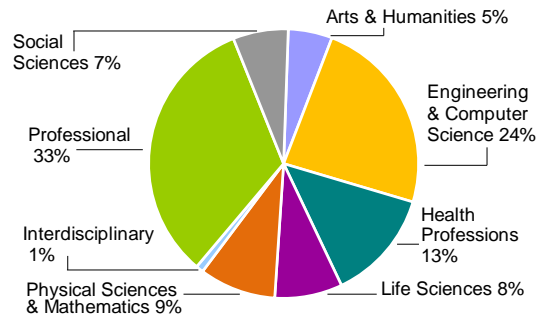
Since fall 1990, the proportion among UC graduates of Chicano(a)/Latino(a) students has risen nearly 220% and the proportion of Asian American students has risen approximately 160%.

Display IV-10: 2018-19 Bachelor's Degrees Conferred by Broad Discipline (Total: 57,165 Undergraduate Degrees)



In 2018-19, UC undergraduates earned 57,165 bachelor's degrees. Approximately 40% of undergraduate students earned degrees in the social sciences, arts, and humanities, with nearly the same proportion earning degrees in STEM fields.

Display IV-13: 2018-19 Graduate Degrees Conferred by Broad Discipline (Total: 20,510 Graduate Degrees)



In 2018-19, UC awarded approximately 20,510 master's (13,735), doctoral (4,096), and professional degrees (2,679). Just over half were in sciences, mathematics, engineering, and health professions, and approximately one third were degrees in other professional disciplines.

UC MERCED

The Merced campus was established as the tenth campus of the University of California to meet the state's overall needs for higher education as well as the needs of a significant and rapidly growing area of California – the San Joaquin Valley. Since officially opening its doors to freshmen, transfers, and graduate students in the fall of 2005 with just 875 students and 60 faculty members, the Merced campus has achieved critical milestones to mark the further development and expansion of the first new research university in the United States in the 21st century.

As the first new UC campus since 1965, the Merced campus has a rare opportunity to become an extraordinary institution as it builds on a heritage of distinction and legacy of excellence. Faculty, staff, and administrators have been drawn to Merced by the challenge of building and sustaining a unique institution in a traditionally underserved area of California. The collective energy and enthusiasm of those committed to development of the institution have resulted in the promise that the Merced campus will emerge as a world-class center of research, knowledge, intellectual relevance, and significance.

Educational Access

Student interest in the Merced campus has continued to grow since the campus opened 14 years ago (see Display IV-14). Over 28,000 students (freshmen and transfers) applied for admission for fall 2018, an increase of 12% over fall 2017. For the fall 2019 admissions process, over 29,000 students applied – a 2% increase over applicants for fall 2018.

In fall 2018, 96% of undergraduate students at the Merced campus were California residents, and nearly 60% were members of underrepresented minorities. Display IV-15 provides demographic details about UC Merced's California resident undergraduates in fall 2018. Approximately 26% of the undergraduate class as of fall 2018 came from the San Joaquin Valley. Moreover, among all undergraduates as of fall 2018 (freshmen and transfers) at UC Merced, 73% were first-generation college students. These students will serve as role models for others and help establish a college-going tradition in their families and communities. In academic

year 2018-19 (the last year for which data are available), 64% of Merced's undergraduates received Pell Grants.

The Merced campus plays a major role in fulfilling the goals of the Regents and the State to ensure that every eligible student in California who applies is offered a place at UC, thus helping to maintain UC's commitment to the California Master Plan for Higher Education. UC Merced is also uniquely positioned to raise the college-going rate in the San Joaquin Valley and beyond. Continued growth of Merced is a high priority for the system.

Academic Innovation and Excellence

As a research university, the Merced campus is particularly focused on increasing the number of students in California who complete advanced degrees. In fall 2018, the campus enrolled 663 graduate students, 92% of whom were pursuing doctoral degrees. Graduate students work closely with distinguished Merced faculty on groundbreaking research across a wide array of disciplines.

The Merced campus is in many ways an educational laboratory. Its faculty and students are deeply engaged in innovative programs in both education and research. The Merced campus's 250 ladder rank faculty members, drawn from around the world, are leading the way in advancing cutting-edge curricula in majors that will support a vibrant range of academic offerings. Currently, students are able to choose from 23 majors and 25 minors.

Research

In terms of developing its research enterprise, the Merced campus continues to demonstrate remarkable achievement, having grown its research expenditures over fivefold, from \$5.5 million in 2005-06 to \$36.6 million in 2018-19 (see Display IV-16 for more details).

Awards have been granted by a variety of federal, State, and private sources, including the National Science Foundation, the National Institutes of Health, the U.S. Department of Agriculture, the Department of Energy, the California Department of Water Resources, and a number of private companies. The success in garnering extramural funding allows the Merced campus' innovative faculty and students to conduct trailblazing, multidisciplinary research in the campus' particular areas of strength, most notably climate change, solar and renewable energy, water quality

and resources, artificial intelligence, cognitive science, and biomedical topics including complex human health issues and stem cell and cancer research. The faculty's accomplishments in these areas are vital to the Merced campus' core mission as a research university with a strong commitment to graduate education.

A distinctive mark on research at the Merced campus is being made by its signature organizations: the Sierra Nevada Research Institute, the Health Sciences Research Institute, the UC Solar Research Institute, and the Center for Information Technology Research in the Interest of Society. The newly created arm of the Blum Center for Developing Economies will increase the campus's direct research involvement with communities within the San Joaquin Valley.

At the Merced campus, opportunities for undergraduates to become involved in research projects are a high priority. As with its instructional programs, the Merced campus' research institutes foster collaboration across disciplinary areas – the relationships among environmental science, human health, and environmental and health policy are examples of issues that are particularly important for the San Joaquin Valley. Partnerships with other UC campuses, Lawrence Berkeley National Laboratory and Lawrence Livermore National Laboratory, Sequoia and Kings Canyon National Parks, and Yosemite National Park, also enhance education and research at Merced.

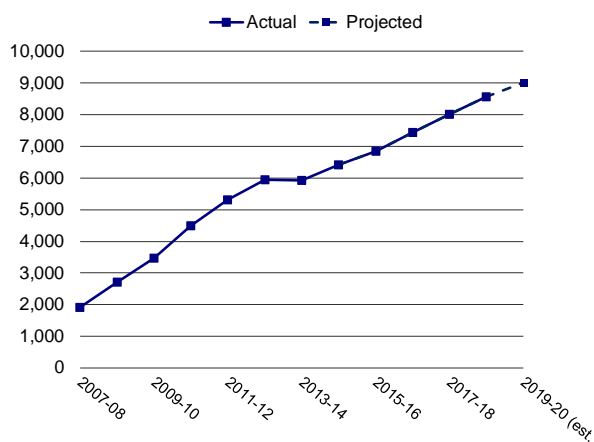
Economic Development

UC Merced serves the San Joaquin Valley as an economic engine. As the employer of more than 1,500 faculty and staff and a major user of local services, the campus continues to be a significant and growing contributor to the regional and state economy: since 2000, UC Merced has contributed more than \$1.7 billion to the San Joaquin Valley economy and \$3 billion to the State economy, including salaries, goods, and construction awards. Most importantly, the campus will continue to produce an educated workforce that will benefit the region and the state.

Essential Growth Funding and Continued Support

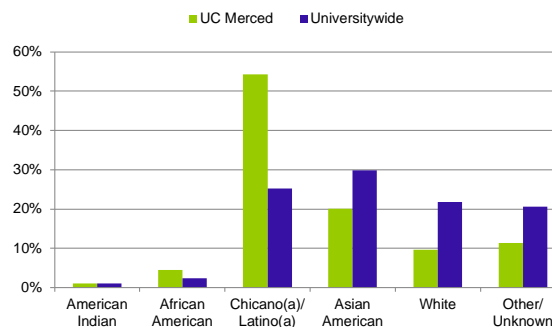
With the most diverse student body of any UC campus, UC Merced is the embodiment of the mission of the University of California. The Merced campus' educational and

Display IV-14: UC Merced Total FTE Student Enrollment



Total FTE enrollment at the Merced campus reached 8,569 students in 2018-19. Interest in the Merced campus continues to grow.

Display IV-15: Fall 2018 California Resident Undergraduates by Race/Ethnicity



Among UC Merced undergraduates in fall 2018, nearly 60% are students from underrepresented groups.

economic impact will continue to grow as the campus matures and as its research agenda continues to produce knowledge and innovations. Despite fiscal challenges, further investment in the Merced campus promises that the tenth campus, as first envisioned, will have a substantial impact on the Central Valley and on the state.

In order to keep the Merced campus on its intended trajectory, continued enrollment growth funding is essential. Given its small size, the campus is not yet able to realize the economies of scale required to maximize efficiency and absorb fiscal challenges. One of the Merced campus's greatest challenges for accommodating enrollment growth is sufficient and timely capital facilities development. The campus is faced with a growing gap between strong student demand for admission and the campus' limited

capacity to provide the capital facilities and infrastructure needed to support that demand.

Merced Capital Development

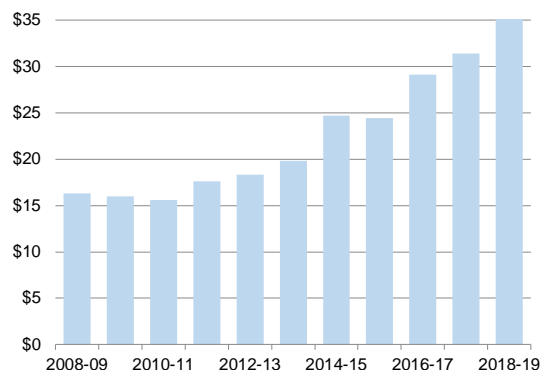
To meet its goal of accommodating 10,000 students by 2020 and in response to the need for additional space, the Merced campus has embarked on a major initiative to further develop the campus, known as Merced 2020. This ambitious initiative represents the next phase of campus development under the amended Long Range Development Plan. The project envisions a dynamic expansion of the existing Merced campus with new mixed-use development that integrates students, faculty, and staff into a sustainable living and learning environment.

The Merced campus has entered into a public-private partnership with a developer to design, build, finance, operate, and maintain the Merced 2020 project. With an approximate budget of \$1.3 billion, Merced 2020 represents the University's largest public-private partnership to date. Merced 2020, which is currently in construction, will expand the campus by 790,000 assignable square feet of academic, administrative, research, recreational, student housing, and student services facilities that will accommodate the planned enrollment growth. The developer will act as the design and construction contractor, provide debt and equity financing, and operate and maintain major building systems for 35 years. This concessionaire approach is new to the University and represents a comprehensive, albeit complex, delivery model.

The project delivery method has the potential to provide facility design and construction quickly. This approach allows the University to augment its capital delivery system and shift project construction and operating risk, while enhancing long term flexibility in situations where yielding control of the real property is appropriate. The final component of this delivery method is on track for completion in June 2020.

In 2018, the campus approved a comprehensive space allocation plan that required a series of "backfill" projects to renovate space being vacated as faculty and programs relocate to the new 2020 Project facilities. These projects will retrofit and upgrade existing space in six academic

Display IV-16: Research Expenditures at UC Merced (Dollars in Millions)



UC Merced and its faculty are attracting significant research dollars to the San Joaquin Valley. As student enrollment grows and additional faculty members are hired, research awards should also continue to rise.

buildings to accommodate new faculty and additional student enrollment. The campus has continued to design and construct several additional facilities beyond the Merced 2020 project. The new Science and Engineering Building 2 opened in August 2014, the second classroom and office building opened in June 2016, and the critically-needed Central Plant Telecommunications Reliability Upgrade project was completed in fall 2016. In February 2018, the campus also completed the Downtown Campus Center administrative building to consolidate staff and help reinvigorate the civic core of its host community.

The University must comply with environmental mitigation requirements, which the campus will meet by purchasing wetland turnkey credits. In addition, the campus is using a portion of the University of California Century Bond proceeds to fund the majority of the downtown Merced administrative building and a small portion of Merced 2020, as well as small infrastructure projects on the existing campus.

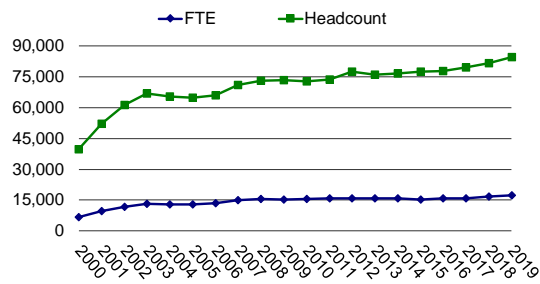
SUMMER INSTRUCTION

The University, with funding from the State, began expanding summer instruction programs in 2001. Since that time, the University has more than doubled its State-supported summer enrollments. As Display IV-17 demonstrates, over 81,500 UC students (or approximately

16,700 FTE) participated in summer instruction in summer 2018.

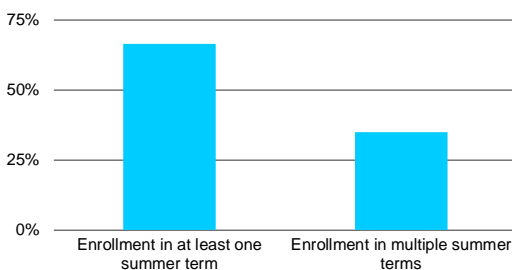
UC campuses offered 5,661 summer primary classes in 2018. Summer expansion has resulted in more efficient use of facilities and accelerated time to degree for undergraduates, thereby making room for more students during the regular year. Students report using summer as a means to graduate on time or even early; they also report enjoying the smaller class sizes and faculty contact. In recent years, over 66% of undergraduate students have enrolled in at least one summer session, and nearly 35% enroll more than once (see Display IV-18) even though students can also use summer for other opportunities, such as work, travel, or internships. This participation rate has stabilized in recent years. However, the University believes the potential exists to further expand summer enrollment, which will play an important role in the University's efforts to help students make timely progress toward graduation and serve more California resident undergraduates.

Display IV-17: Summer Term Headcount and FTE Enrollment at UC



FTE enrollment in summer instruction has grown by an estimated 155% since 2000.

Display IV-18: Summer Enrollment Patterns of UC Undergraduates



Among undergraduates who entered UC in 2013 and 2014, over 66% enrolled in at least one summer term during their undergraduate careers, and nearly 35% enrolled in summer courses during more than one year.

ONLINE EDUCATION AT UC

Interest in and enthusiasm for online learning at UC continues to grow, with increasing recognition of the important role technology and innovation play in providing a high quality and engaging education for UC students. All ten campuses have significantly increased their digital and online learning opportunities. Systemwide, UC offers fully online courses and programs, as well as online components of courses to UC undergraduate and graduate students, thereby enhancing learning opportunities, strengthening teaching and learning, and providing increased access to the needed courses for timely graduation and degrees.

Prior to launching a systemwide initiative in 2013 to increase online education, UC offered approximately 2,600 online courses totaling over 90,000 student enrollments. The majority of these online courses and enrollments were associated with certificate and/or other extension programs, as described in the *Self-Supporting Instructional Programs* chapter of this document. These courses and programs are not typically designed or offered for credit towards graduation to UC undergraduate students.

Since 2013, with input and funding from the Legislature and Governor Brown, UC has emphasized providing enrolled undergraduate students with flexible and innovative learning opportunities that count towards degree requirements. Today, there are more than 500 approved fully online undergraduate courses, and over 300 fully online graduate courses, representing a 32% overall increase in the UC online catalog. Another 4,500 online, not-for-credit courses are offered to non-matriculated students through UC Extension. In close collaboration with campuses, UC operates the Innovative Learning Technology Initiative (ILTI), utilizing funding provided by the State for online education. ILTI focuses on increasing undergraduate access to courses needed for a timely graduation by providing funds to campuses to support online and hybrid courses, campus and systemwide infrastructure, cross-campus course instruction, and evaluation and accountability efforts.

In 2018-19, ILTI hit many milestones, including:

- awarding funds for the development of an additional 60 online and hybrid undergraduate courses to be offered to students across the UC system during the academic year, bringing the cross-campus course catalog to 380 courses;
- enrolling more than 50,000 UC undergraduate students in online and hybrid courses, including approximately 1,500 cross-campus students (UC students enrolling in online courses offered at other UC campuses during the academic year);
- significantly increasing the number of online courses that provide General Education (GE), pre-major, or major credit and/or course equivalence at other UC campuses through focused and sustained efforts; and
- further enhancing the central infrastructure necessary to support online cross-campus offerings by creating compatibility between campus registration systems and supporting a cross-campus enrollment website with a searchable database of courses.

Individual campuses are utilizing innovative online approaches to enhance teaching and learning. Examples include the following.

- The “Engineering 130: Thermodynamics” course at UC Merced utilizes online web-conferencing tools and animations in interactive “Ask the Expert” office hours. Student participation in the informal office hours has increased substantially, along with student satisfaction in the course.
- “Geology 007: Minerals and Health” at UC Riverside centers on interactions between people and earth’s mineral resources. A virtual lab takes the students on a virtual field trip to abandoned gold mines in the Mojave Desert, where the faculty design group extracted samples for lab analysis. Students observe these samples with images provided from an electron microscope. After learning principle concepts, students prepare a project called, “The Air We Breathe,” which requires them to submit air samples to the professor for analysis and presentations.
- In UC San Diego’s “Music 5: Sound in Time” course, students design a “sound walk,” which consists of a map or schematic drawing of a place, and record the sounds in that location. In class meetings, students use uploaded audio files to identify and categorize sounds according to conceptual themes. Later in the term, students learn to create their own “sound walks” by mixing and combining sounds in a live performance.
- A course titled “Rome the Game” at UC Santa Barbara introduces students to the art, archaeology, and history of ancient Rome, with a particular focus on writing and

the research process. The course is organized as a narrative-driven game with lectures, readings, and assignments presented within the world of a game. Students, during a virtual stay in Rome, supervise part of an archaeological dig and decide where and how to excavate; visit museums in search of a mysterious group of ancient objects; explore the monuments, art, and architecture of the city of Rome; and navigate the shadowy world of the mafia-run black market for looted and forged artworks and antiquities.

With the development of new tools and applications, by UC and externally, online courses leverage interactive tools and technologies to support quality learning opportunities. These tools support and facilitate UC student engagement with content, faculty, and other students.

UC also offers advanced degree programs with online components. Examples include programs in Information and Data Science; Journalism; Criminology, Law and Society; and Human Computer Interaction and Design. Many of UC’s top-ranked graduate and professional programs offer online executive education and are actively developing more online degree programs. The University also works with the broader educational community in California, for example, by participating in monthly collaborative sessions with CSU and CCC to continue exploring new practices for effective online education.

Through UC’s Scout program, high schools offer approved A-G courses online. Schools, teachers, and students can choose from a variety of online A-G and College Prep approved Advanced Placement courses. In 2016-17, the University received \$4 million in one-time funds to expand the UC Scout program by increasing the number of courses offered through the A-G Success Initiative. This initiative has developed more than 45 high-quality fully-online middle school and high school classes approved by the University to satisfy the A-G subject requirements.

Delivering outstanding online education to engage and inspire across the academic spectrum requires a long-range, multi-faceted strategy, one in which technology plays an integral role. For the University of California, the next five years promise to be ones of great activity and accomplishment, as UC, in concert with ILTI’s support and funding, expands innovative instructional technologies and tools to enrich and enhance teaching and learning.

Health Sciences Instruction

The University of California plays a critical role in training health professionals, conducting scientific research, and delivering high-quality health services.

- UC operates the largest health sciences instructional program in the nation, enrolling approximately 15,000 health sciences students/trainees across 19 schools at seven campuses. These include schools of dentistry, medicine, nursing, optometry, pharmacy, public health, and veterinary medicine. Across the health professions, UC programs provide an unparalleled integration of education, research, and patient care.
- UC's research discoveries help prevent and cure diseases, create new technologies for diagnosing and treating illnesses, and provide new strategies for staying healthy. Beyond millions in federal and philanthropic dollars invested in the state through research contracts and grants, UC's contributions to the prevention and treatment of chronic medical conditions such as asthma, cardiovascular disease, and diabetes help improve health outcomes and achieve savings and economic productivity.
- UC operates six health systems, five of which are academic medical centers, providing high-quality health services to millions of Californians every year, as described in greater detail in the *Teaching Hospitals* chapter of this document. In addition, UC provides education, prevention, and early intervention services to thousands of Californians through community health and outreach programs.

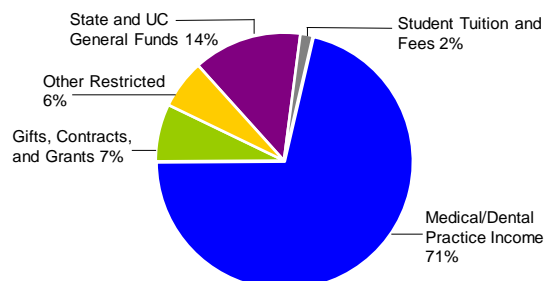
The most pressing goals of the University's health sciences programs are to train skilled, knowledgeable, and compassionate healthcare professionals; to improve healthcare outcomes through state-of-the-art research; and to deliver high-quality health services in California and worldwide.

FUNDING FOR HEALTH SCIENCES

In 2018-19, expenditures for health sciences instruction totaled \$3.2 billion, of which \$442 million were State and UC General Funds. The patient care services provided by UC health sciences faculty also generate significant revenue, which provides valuable support for health sciences instruction.

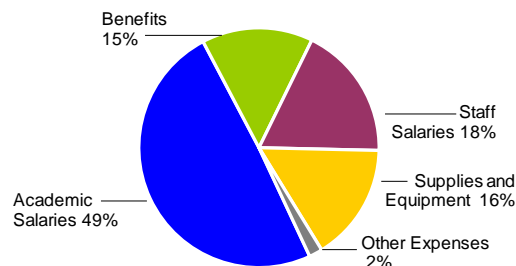
To operate the instructional program, the health sciences schools require faculty, administrative and staff personnel, supplies, space, and equipment. Faculty requirements for

Display V-1: 2018-19 Health Sciences Instruction Expenditures by Fund Source (Total: \$3.2 Billion)



Physician and other professional fee revenue as well as support from the medical centers contribute substantially to funding the cost of clinical training in the health sciences.

Display V-2: 2018-19 Health Sciences Instruction Expenditures by Category (Total: \$3.2 Billion)



Academic and staff salaries and benefits constitute over three-fourths of all health sciences expenditures.

instruction are linked to historic student-faculty ratios initially established for each profession and category of students enrolled. These student-faculty ratios, which tend to be lower than those required of general campus courses, reflect the intensity and requirements of both basic sciences and clinical instruction, including associated medical and legal responsibilities for supervision of students engaged in direct patient care.

During the State's fiscal crisis of the early 2000s followed by the Great Recession of 2008, State support for UC's professional schools was substantially reduced and professional fees increased to offset lost State revenue. Physician and other professional service fees, and increasingly, Professional Degree Supplemental Tuition (PDST) charged to students in medicine, dentistry,

veterinary medicine, nursing, optometry, public health, physical therapy, and pharmacy are necessary to support UC instructional programs. More recently, PDST has increased in order to maintain quality and academic excellence. Although schools have accelerated efforts to address the consequences of rising tuition by increasing scholarship funds, the collective impact of these rapid increases raises serious concerns about rising educational debt. Continued efforts will be required to contain costs, maintain and enhance access, and keep student debt at manageable levels.

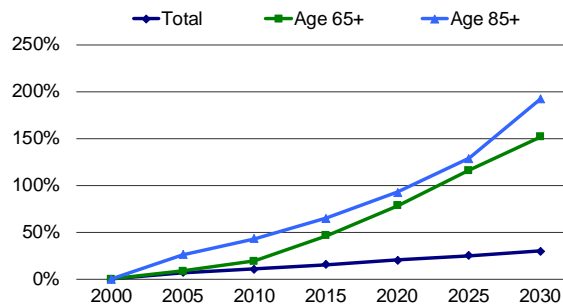
STATE NEEDS FOR HEALTH SCIENCES EXPANSION

Already the most populous state in the nation with nearly 40 million people, California is projected to grow by nearly 10% between 2018 and 2030, adding another 4 million residents who will need care. California's elderly population will grow even more rapidly, with the population age 85 or older growing by 60% between 2018 and 2030, as shown in Display V-3. California's population is more racially and culturally diverse than most other states in the nation, with 27% of the population born outside the United States, about twice the U.S. percentage.

Despite these growth trends, UC has only modestly expanded its enrollment in health sciences programs. Only recently has the University increased medical student enrollment through new programs in medical education, such as at UC Riverside, and nursing enrollments through the development of new programs, such as at UC Irvine and UC Davis, and modest growth in existing ones. Many areas of California still face a shortage of healthcare professionals, perpetuating a gap in access to care. Growing California's healthcare workforce will likely require the following conditions:

- new educational models involving interdisciplinary training and team-based approaches to patient care;
- increased investment in and access to health professions education;
- increased diversity of all UC Health professions faculty and students; and
- innovative approaches to teaching, including telemedicine, distance learning, and use of new technologies.

Display V-3: Projected California Population Growth by Age Group



Between 2018 and 2030, California's population will grow by nearly 10%. During that time, the population age 65 and older will grow 53% and the population age 85 and older will grow 60%.

INVESTING IN HEALTH SCIENCES EDUCATION

Among the University's health sciences budget priorities are securing permanent State support for the School of Medicine at UC Riverside, UC Programs in Medical Education (PRIME), and the recently established Schools of Nursing at UC Davis and UC Irvine.

MEDICAL EDUCATION

UC Riverside School of Medicine

The School of Medicine (SOM) at UC Riverside (UCR) opened in 2013 as the first public MD-granting medical school to open in California in over 40 years. To help address the healthcare needs of Inland Southern California and the state, UCR SOM is training a culturally competent and diverse physician workforce. The School's mission directly addresses the needs of Inland Southern California, which has the greatest shortage of primary care and specialist physicians of any region in the state, according to the California Health Care Foundation. Now enrolling approximately 250 medical students, the UCR SOM has graduated three classes totaling 128 students and has placed 106 additional physicians in residency programs in California, with 40 of those residents remaining in Inland Southern California. UCR SOM is the only community-based medical school in the UC System, and as such, it does not have its own hospital. Consequently, SOM relies on regional hospitals and community providers to provide clinical training sites for its students and resident

physicians. The goals of the SOM focus on transforming the way healthcare is delivered to the community by:

- selecting students oriented to the mission of the school, especially those who have ties to Inland Southern California, and creating new residency training slots in the region;
- improving the population's health through proactive primary and preventive care, effective management of chronic diseases, and filling gaps in the region's subspecialty services;
- enhancing the patient care experience by providing accessible, timely, and culturally sensitive services;
- lowering healthcare costs by implementing a medical home model of care that emphasizes prevention, wellness, and chronic disease management by reducing variations in practice and outcomes and improving efficient use of specialty care services; and
- developing research and clinical expertise in population-based assessment of health and wellness, health interventions, healthcare disparities, and access.

In 2012-13, the SOM secured preliminary accreditation from the Liaison Committee on Medical Education (LCME) and enrolled its first class of 50 students in August 2013. The School was granted provisional accreditation in June 2015 and received full accreditation from LCME in June 2017.

The 2013-14 Budget Act included \$15 million in permanent State funding for the SOM as part of UC's base budget augmentation. Although this funding was crucial to the first phase of the medical school's establishment, it has not been sufficient to fully develop the school's operational infrastructure, address its capital needs, or expand class sizes and faculty, all of which are in service of the School's goal to address the region's physician shortage. To help address this shortfall during the first five years of operation, the Riverside campus provided funding to support the SOM. Further campus subsidization is not sustainable without reducing other UCR programs.

Additional ongoing operating revenues are needed to support the existing SOM program, as well as to allow for the expansion of class sizes. A recent site visit report conducted by the UC Office of the President (December 2018) determined that "the initial funding for the SOM was approximately \$25 million less than was needed...to enable the full development of the SOM."

An additional ongoing State appropriation of \$25 million would enable the SOM to invest in multiple critical projects. Given the School's history of underfunding, a portion of the \$25 million would be used to secure the existing platform; most of the remainder would be used to grow the School's total enrollment to an estimated 300-320 students, ensure sufficient space for teaching and learning, and replace depreciated equipment. Current fund sources have allowed the School to hire the minimum faculty necessary to deliver the initial roll-out of curriculum for medical students. With the support of \$25 million in incremental operating funds, the School would be positioned to hire an additional 40 faculty FTE, including several within clinical academic units that would help support the educational experience of medical students. These hires would enable the School to reduce its reliance on voluntary and community based faculty, providing more stability in the training program. To support additional student enrollments and faculty, the School would also aim to hire up to 51 additional staff FTE across different leadership and administrative roles. By allowing for such investments, this infusion of additional ongoing funds would forge a clear path for the Riverside School of Medicine to meet its long-term strategic needs and to more effectively tackle the physician shortage of Inland Southern California.

Thus far, the School has made progress toward increasing physician capacity in the Inland Empire by expanding student pipeline programs to prepare more of the region's students for careers in medicine and health, and building new residency training programs. These efforts are mostly funded by grants and affiliate contracts, so their sustainability is uncertain. Supported in part by extramural funding, the SOM has expanded its pipeline programs for students from the middle school level through a post-baccalaureate "gap" year program. These programs, reaching approximately 1,000 pre-med students, provide enrichment and academic support to improve the educational attainment of youth and to create a clear pathway leading up to and into medical school. In addition, the SOM has continued the tradition of providing a portal into its medical school exclusively for UCR's undergraduate degree holders; up to 24 of the current medical school seats each year are reserved for these students in the Thomas Haider Program at the SOM.

To begin addressing the uneven distribution of residency training opportunities in California, the SOM has added over 100 new residency training slots in Inland Southern California with programs in internal medicine, family medicine, and psychiatry, as well as fellowship programs in child/adolescent psychiatry, cardiovascular medicine, and gastroenterology. Working with Loma Linda University, a primary care pediatrics track has also been established with the institutional sponsorship held by Loma Linda. The SOM also partners with community hospitals in the region for additional programs in family medicine, general surgery, internal medicine, and neurology. In total, UCR-sponsored and affiliate-sponsored programs combined are currently training approximately 280 resident physicians and fellows. Development of additional residency training programs and fellowships is planned for future years.

Programs in Medical Education (PRIME)

California's physician workforce is vital to the health and well-being of the state's nearly 40 million residents. As the most populous and most ethnically and culturally diverse state in the nation, California faces unique challenges in improving access to care and health outcomes for its citizens. Health sciences graduates must be prepared and better trained to address the cultural and socioeconomic factors, health practices, and potential environmental hazards that affect health outcomes. Without comprehensive strategies and focused teaching programs, current health disparities will persist and likely intensify in the years ahead as the state faces a substantial shortfall of physicians and other healthcare workers.

In 2004, UC launched a systemwide medical education program intended to address state needs. Referred to as "Programs in Medical Education," or PRIME, the program includes innovative training programs focused on meeting the health needs of California's historically underserved populations, by combining specialized coursework and clinical training experiences designed to prepare future clinician experts, leaders, and advocates for the communities they will serve.

PRIME's focus on medically underserved communities has also resulted in extraordinary increases in racial, ethnic, and socioeconomic diversity across the UC medical education system, with more than 60% of PRIME students

PROGRAMS IN MEDICAL EDUCATION (PRIME)

Rural PRIME (Rural California) at Davis

Incorporates an award-winning model program in telemedicine with a commitment to outreach and rural healthcare.

PRIME-LC (Latino Community) at Irvine

Emphasizes Latino health issues, including increased proficiency in medical Spanish and Latino culture.

PRIME (Leadership and Advocacy) at Los Angeles

Trains future physicians to lead and advocate for improved healthcare delivery systems in disadvantaged communities.

PRIME San Joaquin Valley

Provides specialized training with an emphasis on community-based research and educational experiences to improve the health of populations in the San Joaquin Valley region of California.

PRIME-HEq (Health Equity) at San Diego

Builds upon research about health disparities to help students learn and contribute to achieving equity in healthcare delivery.

PRIME-US (Urban Underserved) at San Francisco

Offers students the opportunity to pursue interests in caring for homeless and other underserved populations in urban communities.

from groups underrepresented in medicine. In 2018-19, approximately 350 medical students were enrolled in PRIME.

While this program has earned recognition for its innovation and success, the State has not provided the funding needed to fully support the program. Continuation of the program in these circumstances has meant that funding within the medical schools has been redirected to support this program. As such, PRIME has not yet reached its primary goal, which was to substantially expand the number and diversity of medical school graduates in to address the needs of the State's growing and diversifying population.

Future Branch Campus

San Joaquin Valley (SJV) PRIME was launched in 2011 by the UC Davis School of Medicine, in partnership with UCSF Fresno and UC Merced, to recruit and prepare students for future careers in medicine in the San Joaquin Valley. SJV PRIME students complete their basic sciences/pre-clinical education at UC Davis, then complete most of their required third-year core clerkships at UCSF Fresno, with

options for selecting the amount of time spent in the fourth year at UCSF Fresno or UC Davis.

In 2018-19, management and oversight of the SJV PRIME program transitioned from UC Davis to UCSF. Medical students enrolled in SJV PRIME will spend 18 months at the UCSF medical campus and then move to Fresno for the remaining years of their training. The transfer opened the door for UCSF to establish a branch medical school campus in Fresno, further address physician shortages in the region, and academically prepare a pipeline of students, many of whom are from the Central Valley, for careers in health and medicine.

NURSING EDUCATION

Virtually all Americans will require nursing care at some time in their lives. The recent nursing shortage raises concerns that must be addressed in California and nationwide, especially in light of national healthcare reform and the substantial increase in numbers of Californians who have health insurance as a result of the Affordable Care Act and associated Medicaid (Medi-Cal) expansion.

California remains among the states with the lowest number of employed registered nurses per capita (809 versus the U.S. average of 1,038 per 100,000). Causes of the nursing shortage include rapid population growth (especially of those over age 65) and an aging nursing workforce (half of California's licensed nurses are age 50 and older).

To help meet the state's future nursing needs, the University has focused primarily on graduate level nursing education, by, for example, preparing new faculty to join nursing programs and train advanced practice nurses. All four UC nursing campuses (Davis, Irvine, UCLA, and UCSF) offer graduate programs to train professional nurses and nursing faculty.

Baccalaureate Nursing. Both the California State University and the California Community Colleges have large undergraduate programs in nursing. UC operates two undergraduate nursing programs (at the Irvine and Los Angeles campuses) as part of its efforts to rebuild the pool of nurses eligible to pursue future graduate work to become nursing faculty, as well as to allow college-bound high

school graduates interested in nursing the opportunity to pursue such a degree at UC. In fall 2006, UC re-established the Los Angeles campus' bachelor's degree program in nursing and added a new undergraduate program at the Irvine campus. In recent years, the healthcare industry has seen increased demand for nurses with bachelor's degrees, with many employers preferring or requiring such a degree for employment.

UC Davis School of Nursing

In 2007, the Gordon and Betty Moore Foundation (GBMF) announced \$100 million in founding support, among the largest commitments ever made to a nursing school, to launch the Betty Irene Moore School of Nursing at the Davis campus. The GBMF's vision for the School of Nursing was as a public-private partnership between the Foundation and the State in which both would provide funding for the new school. The campus admitted its inaugural class of students in the master's and doctoral programs in fall 2010. In 2013, the School of Nursing added the Master of Science – Nurse Practitioner and Master of Health Services – Physician Assistant Studies programs. A fifth program, which prepares new nurses – the Master's Entry Program in Nursing – opened in summer 2016.

The expectation of the GBMF, as memorialized in the grant agreement with the University of California, was that as students are enrolled in the school, funding to support those students would be provided by the State in a manner consistent with funding provided to nursing programs at other UC campuses. This condition was endorsed by the Regents in their approval of the school in March 2009.

UC Irvine School of Nursing

The UC Irvine (UCI) Program in Nursing Science was established in 2007. The Irvine campus added a master's degree program in 2009-10 and expanded with an initial cohort of Ph.D. students in fall 2013. Almost ten years after being established, in 2016, the William and Sue Gross Family Foundation committed \$40 million to establish the Sue & Bill Gross School of Nursing at the Irvine campus. The combination of public and private support enables UCI, like UC Davis, to train the next generation of nurse leaders. The foundation gift funds construction of a state-of-the-art building, increasing classroom and research capacity, with

a focus on real-world training, and expands nurse-managed community clinics. UCI School of Nursing's overall enrollment is expected to triple in the next decade, from approximately 218 to 600 undergraduate, master's, and doctoral students by 2028. Nursing faculty which includes by line faculty and clinical faculty will increase from 17 to 50 in the next decade.

UC Nursing Budget Advisory Group

In January 2017, President Napolitano appointed the UC Nursing School Budget Advisory Group with the charge to develop a proposal and specific recommendations for achieving long-term fiscal sustainability for the UC Schools of Nursing. Various structural deficits were identified within the UC Schools of Nursing (SON). Factors contributing to this problem include: 1) a later initiation of the fees and a comparatively lower level for Professional Degree

Supplemental Tuition (PDST) compared to other UC Health Science degree programs; 2) higher costs associated with clinical teaching (compared to non-clinical programs) that are intensified by lack of support from some UC academic medical centers for teaching nursing students; 3) student tuition that does not fully support expenditures related to student instruction; and 4) high start-up costs related to relatively small and new nursing programs that are still expanding enrollments and programs. The Advisory group submitted a report to President Napolitano in June 2017 that summarized findings, provided recommendations, and suggested next steps for developing campus-specific plans and monitoring overall progress. A final formal progress report was submitted in July 2019.

Self-Supporting Instructional Programs

This chapter describes three instructional program categories that largely generate their own support: University Extension, summer session for non-UC students, and self-supporting graduate professional degree programs.

UNIVERSITY EXTENSION

University Extension is the largest continuing education program in the nation, providing programming for over 430,000 registrants annually. Extension students are typically employed adult learners with a bachelor's degree. UC Extension is a self-supporting operation and its offerings are dependent upon user demand, which varies due to multiple factors, including the strength of the economy. In 2018-19, University Extension expenditures for instruction were \$302 million.

The University offered its first extension courses to students beyond the immediate campus community more than 100 years ago. Today, extension divisions at each of UC's ten campuses offer nearly 27,000 courses, programs, seminars, conferences, and field studies throughout California and in a number of foreign countries. The majority of UC Extension programs are designed to serve the continuing education needs of working professionals. Programs are presented through open-enrollment courses for individuals, as well as through organizational partnerships supported by contracts and grants with public agencies, non-profit organizations, and private companies. Certificate programs are offered in areas such as computing and information technology, environmental management, graphics and digital arts, and health and behavioral sciences. In 2018-19, UC Extension awarded 8,358 certificates.

UC Extension offers a wide variety of online courses to students in California, across the nation, and around the world, ranging from undergraduate courses carrying UC academic credit to professional-level courses in subjects such as project management, computer programming, and technical writing. These courses extend the

instructional resources of the University to the global community.

Extension credit programs are reviewed and presented through policies established by the UC Academic Senate. While they do not offer degrees, extension programs provide transferrable degree credit, professional development, and personal enrichment classes, as well as public service programs to matriculated and non-matriculated domestic and international students, and to corporate and non-profit agencies and organizations. Various undergraduate and graduate degree credit courses are available, either as equivalents of existing UC campus courses or structured as undergraduate classes but with content not found in an existing campus offering. Extension courses explore history, literature, and the arts in traditional and innovative ways, providing cultural enrichment to Californians. Extension also serves UC's public service mission through lecture series, summer institutes, public affairs forums, and other events for the general public.

The 2019-20 Governor's Budget includes \$15 million in one-time General Fund support for development or expansion of degree and certificate completion programs at the UC Extension centers.

SUMMER SESSION FOR NON-UC STUDENTS

In addition to the University's course offerings during the regular academic year, UC and non-UC students may enroll in courses during the summer session on any of the ten campuses. Before fall 2000, the State did not provide funding for the summer term; State appropriations were only directed toward the fall, winter, and spring terms. Through summer 2000, summer sessions were supported from student course and registration fees set by each campus. With State support, UC began converting summer instruction for UC students from a self-supported to a State-supported program in 2001-02 and completed the conversion of all general campuses in 2006-07. Further discussion of State-supported summer instruction may be found in the *General Campus Instruction* chapter of this document.

Self-Supporting Instructional Programs

Non-UC students make up a proportion of the summer sessions student population and their fees contribute to the summer sessions program. Non-UC students may pay higher fees to help support the cost of their education and are not eligible for financial aid. In 2018-19, out of 94,726 total students, 9,847 non-UC students registered for UC Summer Sessions, many of whom were regularly enrolled at California State University, California Community Colleges, or other institutions. Approximately \$23.5 million of summer session expenditures in 2018-19 were funded from non-UC student tuition and fees.

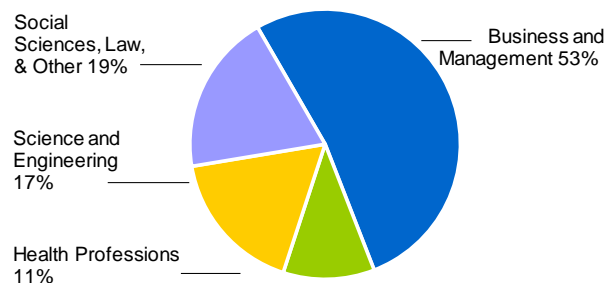
SELF-SUPPORTING DEGREE PROGRAMS

The University operates 86¹ self-supporting graduate professional degree programs. These programs, developed in accordance with the Presidential *Policy on Self-Supporting Graduate Degree Programs*, are intended to provide alternative pathways to graduate and professional degrees for academically qualified adults to further their education and upgrade their skills. Extending opportunities to working professionals is another way that the University helps to meet state workforce needs.

Self-supporting programs adhere to the same academic standards as do other graduate degree programs at UC, but do not receive State funds. Full program costs, including but not limited to faculty instructional costs, program support costs, student services costs, and overhead, are covered by student fees or other non-State allowable funds. Fees for these programs are set at market rates; any excess funds generated by these programs are available to support UC's core academic mission. Some programs are administered through University Extension (though degrees are granted by the department), while others are administered directly by professional schools or academic departments

The University's oldest and largest self-supporting programs are evening/weekend and executive MBA programs (see Display VI-1). More recently, programs have been established in a range of disciplines, and include online programs, off-site programs, joint programs with

Display VI-1: 2018-19 Self-Supporting Program Headcount Enrollment by Discipline (Total: 8,451)



More than half of self-supporting program enrollment is in MBA and other management programs for working professionals.

other institutions, and programs for foreign-trained students.

In recent years, the University revised its policy² on self-supporting programs to recognize that self-supporting graduate professional degree programs are a necessary educational strategy to allow the University to serve a greater number of students above and beyond that which State resources will support. Initially, these programs were directed towards working adults and other non-traditional student populations and were limited to part-time or alternately scheduled programs, but as a result of this revision, self-supporting programs are permitted to be full-time and regularly scheduled.

In 2018-19 a total of 8,451 students enrolled in self-supporting programs. These programs generated approximately \$330 million in revenue in 2018-19.

¹ Discontinued and/or suspended programs not included.

² See <https://policy.ucop.edu/doc/2100601/SSGPDP>.

Research

Established as California's primary academic research institution in the 1960s by the Master Plan of Higher Education, UC alone is charged by the State with developing world-class research universities that serve as the State's research arm. By focusing on this mission, UC has developed the largest number of highly ranked research campuses of any system in the world. UC campuses routinely place among the top five institutions internationally under a variety of ranking systems.

UC's commitment to "teach for California and research for the world" fosters a ready environment for its undergraduate students, graduate students, postdoctoral scholars, faculty, and professional research staff to actively engage in creating new knowledge. They produce works of art, find solutions to the most pressing social and environmental challenges, and push the boundaries of science and technology. They apply this new knowledge to cure diseases, develop industries, enhance our security, and train the leaders of tomorrow's knowledge- and innovation-centric economy. They also publish extensively, principally in leading peer-reviewed outlets. Over the past six years, from 2014 to 2019, UC has published, on average, well over 100 original scholarly articles every day.

Citation measures reflect and are indicators of the University's pursuit of excellence, showing that the impact of UC's scholarly outputs collectively exceeds norms for the nation and the world.¹ UC's pursuit of excellence is also evident in the following achievements: UC has more winners of the Nobel Prize, more Pulitzer Prize recipients, and more members of the National Academies of Science, Engineering, and Medicine than any other university system.

Spanning the full spectrum of academic and professional disciplines, UC research is of enormous benefit not only to California, but to the world at large. The University's researchers contribute to state, national, and global health, security and wealth by, for example, discovering better ways to fight drought and fire, prepare for earthquakes,

reduce traffic and greenhouse gas emissions, improve public health, and identify sustainable sources of energy. With over 800 research centers, institutes, laboratories, and programs spread across ten campuses; five medical centers; a 41-site Natural Reserve System; the Division of Agricultural and Natural Resources serving all 58 counties; and three affiliate National Laboratories, UC tackles some of the most urgent problems facing California and the world and creates knowledge that improves lives. The tremendous size, scope, and quality of UC's research enterprise are the fruits of California's long-term planning and investment: UC performs nearly 10% of all academic research in the United States and, for every State dollar spent (from State General Funds, UC General Funds, and Special State Funds) on research, UC spends nine dollars from federal, private, and other non-State sources, providing a substantial return on investment and stimulus for growing the economy.

California's support for UC's research capabilities is a long-term investment that has performed well even during economic downturns. Years of research funding constraints and increasing global competition for the world's best scholarly talent, however, could compromise UC's research capabilities. While UC faculty members have been extraordinarily successful at attracting federal and private funds to California, UC's share of these funds and their associated economic impact will diminish if other institutions recruit UC's scholars. Similarly, without continued investment, the University is less equipped to attract pre-eminent scholars and graduate students from around the world. Continued investment in UC's faculty and research infrastructure is critical to sustain the research enterprise at UC and its beneficial impact on the state's knowledge- and innovation-driven economy.

THE TEACHING-RESEARCH NEXUS

Research is inextricably linked to the University's instructional and public service programs. As a system of higher education, UC offers unique opportunities for

¹ See <https://accountability.universityofcalifornia.edu/2018/chapters/chapter-9.html#9.2.2>.

students at both undergraduate and graduate levels to learn about and contribute to scholarship at the cutting edge of their disciplines, and UC prioritizes the expansion of these opportunities. Moreover, seven of the ten UC campuses are members of the prestigious Association of American Universities (AAU). The nation's top undergraduate and graduate students and postdoctoral scholars pursue an education at UC because of the outstanding reputation of its academic and professional programs.

The strength of UC's scholarly programs is structured around its world-class faculty. UC recruits faculty from around the globe, who bring excellence to their teaching and original scholarship. Throughout their UC careers, faculty members are expected to continue to push the envelope, advancing the leading edge of their fields. Adherence to this pursuit of excellence has created a robust, enterprising research culture that touches almost all aspects of University life, attracts billions of dollars in funding annually to the University, and draws many of the best students in the world to learn and work in California,

Students experience research both in and out of the classroom. As part of formal instruction, faculty scholarship underlies the entire undergraduate curriculum; it exposes students to a discipline's core skills and knowledge, overarching questions, latest findings, and methodology.

Beyond formal instruction, undergraduate students have increasing opportunities to conduct original scholarship. The 2018 UC Undergraduate Experience Survey (UCUES) found that about 73% of senior undergraduates have already engaged in research projects as part of their coursework, while nearly 23% of survey respondents have assisted faculty in conducting research. The Internet and other technological tools are enabling the democratization of the discovery process, helping to increase and enrich undergraduate participation in original scholarship and the creation of new knowledge in their disciplines of study. This close engagement with research allows undergraduates to understand how new knowledge in their fields is created. As they participate in scholarly and research activities, UC undergraduates are also mastering valuable critical thinking, communication, and problem solving skills. These skills, along with international experience, will help UC

undergraduates become engaged global citizens and competitive contributors to the global economy.

For graduate students, research conducted in laboratories, field stations, studios, and other settings is at the root of their development as scholars. In the 2013 UC Graduate Alumni Survey, a majority of doctoral alumni, working both within and outside of academia, identified academic skills, the practice of research methods, and presentation of their work at conferences as the three most valuable elements of their doctoral education. UC recruits exceptional graduate students, postdoctoral scholars, and professional researchers who work closely with faculty to help attract research dollars to the state that are used to advance knowledge and train the next generation of teacher-scholars.

In 2017-18, UC trained over 15,000 graduate students as paid research assistants and employed or hosted about 6,500 postdoctoral scholars. Funding for graduate enrollment growth helps expand the pool of individuals who engage in and support research programs and who often are future UC and CSU faculty. As part of its commitment to high quality graduate education, UC has launched a set of "academic pipeline" initiatives to encourage students to pursue UC graduate studies and build a graduate population reflecting the diversity of the state and nation.

In order to enhance the representation of underrepresented group students earning advanced degrees, UC developed the UC-HBCU (Historically Black Colleges and Universities) Initiative, which specifically seeks to increase the number of HBCU graduates in UC Ph.D. programs by investing in relationships between UC faculty and HBCUs. Grants are competitively awarded to UC faculty members to host HBCU students as summer research interns and facilitate faculty research collaborations and other educational activities that serve the goals of the Initiative. As part of the Initiative, UC provides fellowships to participants who subsequently enroll in UC Ph.D. programs. UC is developing a similar pipeline initiative in collaboration with the CSU system to increase enrollment in UC Ph.D. programs of both systems' diverse communities of students (five UC campuses and almost all CSU campuses are Hispanic Serving Institutions).

An important aspect of the teaching-research nexus is internationalization. Research is an intrinsically global enterprise; scholars from all parts of the world participate in the creation of knowledge and broadly share their contributions. UC's scholars are already highly international, with 24% of all ladder rank faculty and 31% of all other academic appointees coming from outside the United States. This level of overseas engagement, when combined with the 28% of graduate academic students and 66% of postdoctoral scholars from abroad, provides a diverse community of teacher-scholars that raises multicultural awareness at the campuses and national laboratories of the UC system.

An area that is ripe for growth is international research opportunities for UC students. The 2018 UCUES notes that just over 11% of undergraduates reported participation in a UC study abroad program. Through the many international connections that UC scholars possess, the UC system is exploring ways to increase the percentage of undergraduates going abroad over the next five years and to enhance the infrastructure available overseas to support education and research activities of UC faculty, academic staff, and students. This effort is expected to enhance the competitiveness of UC graduates by demonstrating their ability to study and contribute to original scholarship in two or more culturally diverse settings. The students' performance will also help to benchmark to international standards the quality of academic preparation that the UC system provides. UC will study the impact of international and other student experiences on graduate employment using educational data science methods to inform students' academic decisions while they are at UC.

UC RESEARCH CREATES JOBS AND AFFECTS THE LIVES OF CALIFORNIANS

Strengthened by the State's long-term investment, UC research has contributed to California's emergence as the intellectual and economic power that it is today. California is the epitome of the entrepreneurial ecosystem where risk-takers look for new opportunities to create disruptive change and drive economic success. The "49ers" of the gold rush gave way to the technology pioneers of the 20th century, who created entire industries based substantially

SPOTLIGHT ON STUDENT RESEARCH

Student research is a key part of a UC education, and UC strives to provide students at all academic levels with the opportunity to create new knowledge in their field. Communicating their discoveries is also a valuable skill; UC works with their students to hone their communication skills and offer opportunities to present their findings to audiences throughout the state.

For example, the Natural Reserve System (NRS) offers an undergraduate field ecology and conservation course that connects students from the nine undergraduate campuses for seven weeks of intensive scientific training at NRS reserves. Students complete independent research while learning to detect natural patterns, frame questions into research projects, apply field techniques, and present their findings in oral presentations, posters, and written reports. Students hone their research, public speaking, and scientific writing skills while gaining a working familiarity with California's diverse ecosystems. The NRS is developing a new program that will offer a diverse group of undergraduate students the opportunity to conduct independent field-based scientific research on NRS reserves. This program will help to encourage underrepresented group students to consider field research careers.

At the graduate level, UC campuses provide many opportunities for their students to explain the impact of their dissertation research. Every year, graduate students from every UC campus visit Sacramento for Graduate Research Advocacy Day. These students speak with legislators from their local districts about the importance of graduate research and its contribution to California's health, economy, and security. For example, UC Merced Ph.D. candidate Vicky Espinoza's research focuses on the development of strategic land retirement and alternative land use methodologies in the San Joaquin Valley. Ms. Espinoza's research has the potential to find new ways to manage California's food-energy-water systems, and could be a source of valuable insight for future direction and development of sustainability policy.

Other opportunities for graduate students include the annual Grad Slam competition, which focuses on communicating the significance of their research in three minutes or less. Katie Murphy, a UC Davis Ph.D. student in plant biology, won the 2019 UC-wide Grad Slam Championship for her work on corn stress resistance. Through better understanding of the biochemical defense systems of maize, Ms. Murphy hopes to harness these natural systems to develop increased resiliency in agricultural crops as a means of protecting the world's food supply from disease and drought.

on innovations derived from fundamental research undertaken at universities. Advances in such areas as semiconductors, microelectronics, personal computers, biotechnology, wireless communication, and web-enabled commerce can be traced to research discoveries made in California, and reflect the efforts of myriad individuals who received their training in the UC system.

Almost all of the industries in which California is among the world leaders – including agriculture, biotechnology, computers, digital media, entertainment, environmental technologies, semi-conductors, and telecommunications – grew out of university-based research. Not only do UC’s research and intellectual property have global reach – with 5,620 active foreign patents, 912 of which were issued in 2017-18² – but UC’s research enterprise also helps stimulate the state economy through deploying new technologies and creating new jobs, companies, and industries. An important aspect of UC’s public service mission is to ensure that results of its research are used for public benefit. This transfer of knowledge into society is accomplished in many ways: through educating students, publishing research results, and ensuring that inventions are developed into products for public use.

For the past 20 years, UC has led the nation’s institutions of higher education in obtaining patents. UC’s faculty and graduates are responsible for 12,257 active inventions, a 2.2% decrease from the prior year’s level. The annual number of invention disclosures since 1993 is shown in

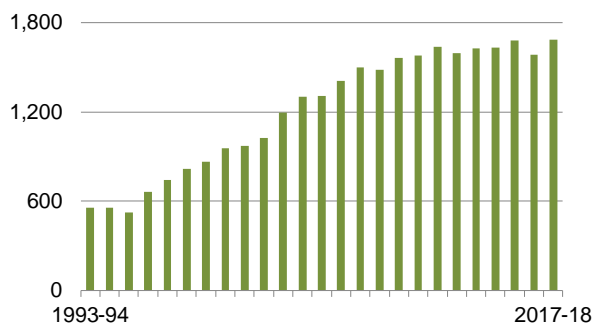
Display VII-1. In 2017-18, UC disclosed 1,735 new inventions (including those of the Lawrence Berkeley National Laboratory), many of which are patented and licensed to companies to develop products that enhance the lives of Californians.

Many of these early-stage UC technologies are licensed to startup companies, which stimulate economic growth in the vicinity of UC campuses. In 2017-18 alone, 93 UC startup companies³ were founded, bringing the total number of startup companies established through UC-patented innovations since 1980 to 1,218 (see Display VII-2). For

example, Nanosys, which stemmed from Ph.D. research, is using tiny, artificial crystals to boost the color vibrancy of digital displays. Similarly, Imprint Energy, co-founded by a UC Ph.D. student in 2010 based on her graduate research, creates ultra-thin, flexible batteries that can be screen-printed in virtually any shape and size.

Beyond spurring the creation of startup companies, many of UC’s 4,923 active U.S. patents have led to the creation of some of today’s leading industries, which have improved our health, changed the way we do business, and enriched our lives. UC patents include the Nicotine Patch, the Hepatitis B vaccine, drugs to treat prostate cancer, mobility bionics and exoskeletons that enable paraplegics to walk, and market-leading varieties of strawberries and citrus.

Display VII-1: UC Invention Disclosures



The annual number of invention disclosures has tripled in over two decades at UC campuses, excluding the Lawrence Berkeley National Laboratory.

Display VII-2: Impact of UC Technology Transfer*

Royalty and Fee Income for fiscal year**	\$200.6 million
UC Portfolio of Active Inventions	12,257
UC Portfolio of Active U.S. Patents	4,923
Number of Active Licenses	2,325
Companies founded based on UC technologies since 1980	1,218

* Total as of June 30, 2018.

** Includes extraordinary income in fiscal year 2018 from a legal settlement.

UC startups provide jobs for Californians as well as tax revenues for the state. As one of the largest research, innovation, and economic development hubs in the world,

² These statistics are not available for LBNL- managed inventions for fiscal year 2018 and are excluded from systemwide totals unless otherwise specified.

³ UC startups are independently operating companies, which formed to commercialize UC technology, and whose licensing of UC technology was deemed critical to the business.

UC will continue to generate and support the industries of the future.

As a land grant institution, UC has worked closely with California's agricultural industry. In the late 1800s, UC researchers discovered how to remove salts from the soils of California's Central Valley, transforming barren land into the most productive agricultural region in the world. Since then, UC has remained committed to supporting the agricultural industry, developing new technologies in crop management and pest control, and helping the industry adapt to changing regulations while remaining competitive

Today, the industry is at the cusp of an era of "precision agriculture," in which new technological tools offer the potential to enhance agricultural productivity as has never before been possible.

UC RESEARCH HELPS SET THE PACE OF CALIFORNIA'S ECONOMY

California's current economy is supported by its preeminent position in technology-centric industry sectors that define a 21st century quality of life, and by the State's ability to leverage natural resources to support a diverse agricultural economy that feeds the nation. Research universities in California – and UC in particular – have played a seminal role in growing the state's economy and creating the many benefits Californians enjoy today. UC's role in shaping and developing California into a global research and economic powerhouse is built on the foundations of the State's historic investments in higher education. California faces increasing national and global economic competition as other states and nations seek to replicate California's research enterprise and economic successes. Buttressed by continued State support, the University – through its research, technologies, and highly trained and talented workforce and students – will play an even more significant role in maintaining and spurring the state's future economy.

As a system of ten campuses, five medical centers, and three affiliated national laboratories, UC research is well positioned to address critical issues from multiple perspectives through team-based scholarship, and UC's commitment to excellence across all research disciplines has created an unparalleled resource on which to build California's economic future. UC researchers, individually

and in teams, may take a variety of approaches to solving a given research problem based on their curiosity and expertise. This diversity of research perspectives enables UC scholars to make progress in areas ranging from the large-scale mysteries of the universe, to nanoscale phenomena, to the molecular basis of disease, to the ways in which we as humans interact with each other and our surroundings. UC researchers receive the support and the access to research infrastructure they need not only to be successful and globally competitive in their fields but also to define the future of their disciplines. They often secure resources through highly competitive extramural support, requiring grant applications that are peer-reviewed using the highest scholarly standards.

Locally, regionally, nationally, and globally, society faces tremendous challenges created by increasing populations, shrinking natural resources, and climate change that will redefine our place in the global ecosystem. UC's research enterprise is poised to address these challenges, harnessing UC research excellence to benefit the state. UC has identified areas of research excellence that have the potential to effectively address the most significant challenges and opportunities facing California for years to come.

Water, Agriculture, and Food Security

Water may well be the limiting factor for California's continued economic success in the 21st century. Climate-driven decreases in water resources will require California to develop alternative approaches to agricultural, commercial and residential water use. Whether it is conservation, recycling/reuse of existing supplies, or growth of the potable water supply through desalination, solutions will require innovative approaches that address technical challenges, environmental impacts, and the socio-cultural implications of significantly less water that is potentially far more expensive.

UC researchers are already working to develop solutions that address the scale of California's water problem, and are creating new remote sensing and water resource models. This will allow for more accurate measurements of the currently existing water resources, and better models to predict the future availability of water based on precipitation patterns and agricultural, industrial, and residential use.

If climate change proceeds as predicted without significant mitigation, the bountiful Californian agricultural economy may no longer be able to help meet the nation's needs. To continue to serve as America's "produce market," California will have to address the challenges of supplying the nation with fresh, nutritious, and safe produce under conditions that could drastically compromise the state's agricultural productivity. Beyond addressing immediate needs of agricultural production, solutions also must factor in food storage, transportation, and distribution to consumers in ways that prevent spoilage and contamination while also minimizing waste. UC researchers are working to develop sustainable, holistic agricultural solutions that encompass plant physiology, plant genetics/genomics, agricultural production technologies, post-harvest physiology, and preservation technologies that ensure that agricultural products remain nutritious, healthy and disease-free from farm to table.

Carbon Neutrality and Energy Sustainability

Global climate disruption is harming the planet, requiring greater reliance on renewable energy sources and the development of more effective and efficient energy distribution and usage mechanisms. The University has been deeply engaged in climate science research, and in climate adaptation, mitigation, and resiliency as part of its planning around climate solutions.⁴ Moreover, the University has aggressively worked with federal representatives to stress the importance of the federal agency funding streams that have traditionally supported climate-related research.

In cooperation with industry, NGOs, and government partners, UC researchers are developing alternatives to fossil fuels to blunt the impact of climate change driven by increased levels of atmospheric greenhouse gases. Alternative sources of energy range from solar, wind, and geothermal power sourced from the earth's physical environment, to renewable biofuels derived from the products of photosynthesis. Throughout the UC system, efforts are underway to design novel energy distribution infrastructures that encompass a broad range of new and customized industrial facilities, to develop synthetic biology

techniques that facilitate the production of biofuels, and to develop decentralized fuel and electricity generation models that incorporate transportation and energy storage strategies.

Additionally, UC researchers are actively creating new energy-efficient designs and technologies that affect public and private infrastructure, modeling new methodologies and technologies that address climate adaptation and mitigation, and developing environmental monitoring and assessments that are applicable within underlying biological or societal constraints. In conjunction with each of these efforts, UC researchers are developing policy, economic, and behavioral impact models to better understand how newly implemented technological solutions affect society.

For additional information about programs addressing Carbon Neutrality and Sustainability topics, see the "Spotlight on Research Excellence" at the end of this chapter.

Health and Healthcare Delivery

Improving Californians' health and their access to affordable healthcare continues to be a major challenge in the 21st century. Beyond educating the next generation of physicians who will provide health care for California's population, UC researchers are tackling some of the most challenging issues in human biology, disease causation, and medical treatment in the following topical areas:

- **Clinical and predictive genomics.** The sequencing of the human genome in the early 2000s started the genomics revolution that underpins many elements of healthcare and precision medicine. Researchers are beginning to understand the basic biological processes that define healthy and diseased states, and are developing personalized, precision medical treatments that target interventions to the underlying molecular basis of disease and facilitate faster approvals of novel, mechanism-driven therapeutics while lowering costs.
- **Sensors, networking, and telemedicine.** The increasing use of communications technology in healthcare is already creating opportunities for remote, predictive sensing and diagnosis of medical conditions. This supports better utilization of expensive health care infrastructure and provides opportunities for early diagnosis and efficient and affordable access for remote populations. Such benefits are of immediate value not only to California with its large geographical size and

⁴ See <http://ucop.edu/sustainability/>.

widely distributed population, but also across the nation and world as the availability of broadband communications infrastructure expands to remote locations.

- **Bioengineering and regenerative medicine.** The evolution of bioengineering and regenerative medicine, supported by Proposition 71 funding, offers potentially groundbreaking alternative treatments to chronic illnesses such as kidney disease, cardiovascular disease, neurodegenerative disease, and traumatic neurological damage. These chronic conditions also account for a significant proportion of health care expenditures and take a great toll on individual and societal productivity. Solutions developed from advances in bioengineering and regenerative medicine may improved both our personal and economic health. Recently, applications of bioengineering advances have expanded beyond areas like prosthetics and hospital equipment to include engineering at the molecular and cellular level, with applications in energy and the environment as well as healthcare.

In many of the aforementioned areas, UC recognizes that advances created by breakthrough science and engineering – like gene editing through UC’s CRISPR/Cas9 technology – will generate complex ethical and regulatory issues. For example, in genetic and genomic medicine, UC researchers from multiple disciplines collectively examine the moral foundations of medicine through the lenses of the humanities, anthropology, and the social and behavioral sciences. This interdisciplinary approach is especially useful to address the bioethical and privacy issues that advances in genomics are creating for patients, families, physicians, counselors, business, and government.

Intelligent Manufacturing and the New Industrial Economy

As technological advances drive the next generation of products and services, California has the opportunity to redefine itself as a center for advanced manufacturing for both specialty and commodity products. California still retains a broad manufacturing base, especially in small to medium sized enterprises (SMEs) that can leverage new manufacturing modalities to supply parts or finished goods to the nation and the world. With proximity to UC and other research universities, and a strong local market of early adopters, California businesses are well positioned to be the test bed for innovative manufacturing approaches that will create good-paying jobs for our citizens. These approaches can reduce labor costs, and may also change

the nature of manufacturing and distribution. Employees in this new paradigm will need a very different skill set from 20th century industrial workers, and it will fall to multiple sectors of higher education to develop the appropriately trained leaders, managers, and skilled workers who will power the new industrial economy. Through their research in the following areas, UC scholars are envisioning, designing, and building this new economy:

- **Intelligent manufacturing.** Combining information, technology, and human ingenuity to bring about a rapid revolution in the development and application of manufacturing intelligence will fundamentally change how products are invented, manufactured, shipped, and sold. This will improve worker safety and protect the environment by leading to zero-emissions, zero-incident manufacturing.
- **Sustainability.** The new manufacturing economy will have to address the challenges of ensuring that processes in use are as environmentally sustainable as possible and that the next generation of manufacturing technologies, such as 3-D printing, is created with sustainability and efficiency as integral design elements.
- **Nanotechnology.** The increasing importance of nanotechnology in materials, life sciences, and engineering is driving new product concepts and designs. UC campuses have a broad range of programs that study the applications of nanoscale structures and provide access for industrial partners to use advanced research facilities. Nanoscale science has applications in energy, health care, environment and information technology, which are all sectors of strategic and economic importance to California.

Transportation and Urban Infrastructure

Urban infrastructure will take on an increasingly prominent role in California, as the State seeks to support higher population densities in ways that maintain a high quality of life, with affordable, environmentally sound and efficient access to employment, education, and recreation. This growth in urbanization is requiring cities and regions to develop proactive and environmentally sustainable transportation plans that connect citizens to jobs, schools, and entertainment in ways that were not envisioned when the current infrastructure was developed. European cities established their integrated transportation infrastructure over the last century or more. During the same period, California cities eliminated much of their equivalent infrastructure, resulting in the need for large capital investments to re-create and re-construct an integrated

transportation infrastructure. UC is poised to address these issues in a variety of ways:

- **Effective transportation.** Transportation systems will be a key contributor to a sustainable economic future and will affect Californians who commute to school or work, who wish to access shopping and recreation, and who benefit from moving goods from manufacturers to markets. Expanding urban populations will need more holistic solutions beyond better roads and more fuel-efficient vehicles, requiring engineers, architects and sociologists to collaborate on building the transportation infrastructures needed to sustain community and economic development. The solutions should include developing infrastructures that can support existing transportation options such as public buses or trains and rideshares, along with near-future technologies such as automated vehicle hubs. They should also anticipate even long-term future transportation technologies yet to be developed.
- **Urban and regional planning.** Along with transportation, regional planning will be a foundational component of the creation and redevelopment of 21st century cities. These cities will have to find economically and ecologically sustainable means of balancing the need for higher density housing, the preservation of historic structures, and access to open space and recreation. UC researchers are already working to meet these needs.
- **Smart residential and commercial buildings.** UC researchers are developing technologies for smart residential and commercial buildings as part of the effort to develop sustainable urban and suburban environments. These technologies include design and structural elements that deliver energy and resource efficiencies as well as attractive working and living environments. Approaches that use advances in building materials, sensor-coupled lighting and heating systems, and information technology-based controls will change living and working environments. Many of these approaches are already deployed at UC campuses as “test beds” to demonstrate their potential.

The Information Age and Artificial Intelligence (AI)

Individuals, institutions, and businesses are collecting, retaining, and using data for everything from creating and maintaining personal relationships through social media to developing new businesses that deliver personalized products or services. Ensuring the security and capacity of these associated networks is a vital component of responsible data management. UC makes important contributions to this effort:

- **Cyber-Infrastructure.** Information technology is becoming increasingly integrated in large-scale

infrastructure projects such as those involving energy, water, and transportation. UC researchers are working to develop the critical cyber-infrastructure that must be built to withstand events ranging from natural disasters to terrorist attacks to human control errors. Enhanced cyber-infrastructure will also be useful in addressing the long-term consequences of climate change, such as increasing temperatures and rising sea levels. Using information technology to develop a strong, sustainable cyber-infrastructure incorporating transportation, water, and energy systems will enable future responsiveness.

- **Cybersecurity.** Faculty conduct cybersecurity research at the forefront of areas that include secure voting, cryptography, privacy, and network security. Additionally, UC researchers collaborate with industry partners to make computing safer for users, with research focused on protecting personal computers from malware, developing innovations in platform and mobile computing security, managing and adapting to security threats, protecting personal data, avoiding data breaches, and giving people more control over their personal data while making it more secure.
- **Big data.** As the data landscape continues to grow exponentially, effective data storage and utilization become increasingly important. UC researchers from disciplines as diverse as astrophysics, computer science, environmental sciences, library sciences, and medicine are collaborating on strategies for cataloguing and indexing datasets. Research in the field of big data focuses not only on the best strategies for using the data, but also on ensuring individual privacy, overcoming sociocultural hurdles, and creating a new scientific culture around data sharing. In 2015, a cross-disciplinary team of UC researchers received an NSF grant to establish the Pacific Research Platform (PRP), a massive regional data-sharing architecture which will enable teams of interdisciplinary researchers across the entire West Coast to access and use ultra-large datasets, driving new discoveries in fields as wide-ranging as astronomy, biomedicine, climate science, and particle physics.

Intimately related to the aforementioned developments is the emergence of artificial intelligence (AI). AI is proving to be transformative, whether its use involves comprehensively scanning clinical trial data for potential treatments for patients, providing personal assistants for use around the home, or carrying out tedious and labor-intensive tasks reliably and efficiently,

AI will affect our society in profound ways. UC has an enormous reservoir of interdisciplinary expertise and talent that allows formation of strong teams that can holistically evaluate the dynamic landscape, which not only includes

technological developments, but policy and workforce outcomes, as well. We anticipate that the humanities, for example, will be a critical contributor to understanding the evolving nature of work and how this evolution affects future human behavior.

LEVERAGING THE STATE’S INVESTMENT IN THE UC RESEARCH ENTERPRISE

To maintain and enhance its competitive advantage, UC’s world-class research enterprise requires the best faculty, research staff, postdoctoral scholars, and graduate and undergraduate students, along with state-of-the-art equipment, and well-maintained facilities. State investment is the basis for UC’s research success and is essential to its sustainability and continued excellence. State funds are used to purchase equipment, staff laboratories, support graduate student research assistants, and support faculty who spend significant time on research.

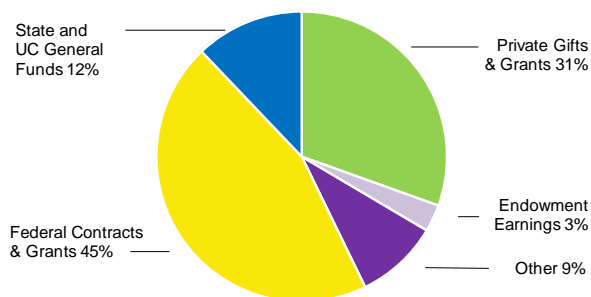
State funds are also used to build and maintain facilities for conducting cutting-edge research, such as the California Institutes for Science and Innovation (CallSIs). These four world-class centers of research focus on telecommunications, quantitative biosciences, nanotechnology, and advanced electronics, which are some of the most promising new areas of growth for high-tech industries. The CallSIs, Multicampus Research Units (MRUs), and projects supported through the Multicampus Research Programs and Initiatives funds, which are discussed further at the end of this chapter, provide the UC system with a first-mover advantage in creating new knowledge and competing for large multi-site studies. Not only are such resources used to conduct research, but they also serve an important pedagogical role as sites at which UC’s faculty train and mentor graduate and undergraduate students and postdoctoral scholars, many of whom then enter the California job market as a highly trained workforce and contribute to California’s economy.

UC researchers are very successful in securing external support for sponsoring their research. In 2018-19, UC received over \$5.8 billion in research awards. The University’s success in attracting extramural funds to

California has been dependent on the State’s continual investment and recognition that UC is an important contributor to the state’s economic prosperity. In 2018-19, direct research *expenditures* (as distinct from *awards*) totaled \$5 billion, a 3.7% increase from the prior year.⁵

Federal, State, and private sources are major providers of UC research funding. Federal agencies are the largest source of support for research, accounting for about half of all University research expenditures in 2018-19. In addition, approximately 10% of UC’s research expenditures from non-federal funds originated as federal awards to other institutions and come to UC as subawards. Display VII-3 shows direct research expenditures by fund source for 2018-19. As shown on the following page, Display VII-4 shows changes over time by source, and Display VII-5 presents trend data about research expenditures in the various disciplines.

Display VII-3: 2018-19 Direct Research Expenditures by Fund Source (Total: \$5 Billion)



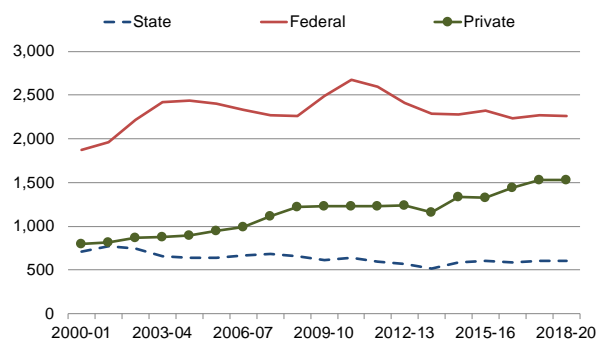
Over 75% of research funding is derived from federal agencies and private sources.

State Funds

In 2018-19, 12% of direct research expenditures came from State Funds (includes State General Funds and Special State Funds) and UC General Funds to support coordinated statewide programs and State agency agreements. For many UC research programs, State and UC General Funds provide seed money for research projects vital to California, such as earthquake engineering and improved crop varieties. This funding is then often leveraged to attract extramural funds.

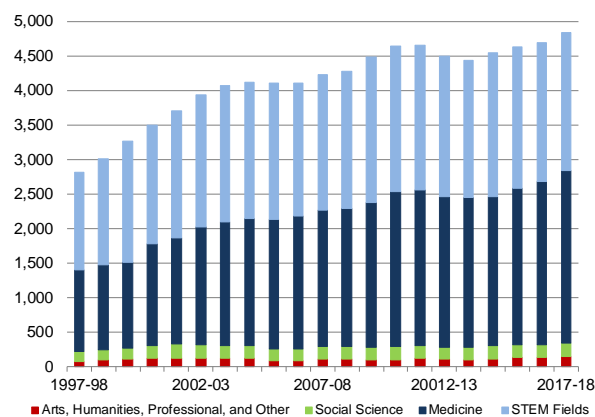
⁵ This rate of growth differs from the rate of growth in extramural awards noted later, reflecting the multi-year nature of research awards.

Display VII-4: Trends in Direct Research Expenditures by Source (Dollars in Millions; Inflation-adjusted)



Adjusted for inflation, direct research expenditures grew by about 38% since 2000-01. During this period State research funds (includes UC General Funds) have declined by 15% while federal and private research funds combined have grown by 42%.

Display VII-5: Direct Research Expenditures by Discipline (Dollars in Millions; Inflation-adjusted)



Expenditures for research in the medical fields have doubled since 1998, while expenses for all other disciplines have grown at half that rate in the same period.

State and UC General Funds provide support for direct research, including:

- the California Institutes for Science and Innovation;
- organized research units on individual campuses that support interdisciplinary research;
- Multicampus Research Units (MRUs)
- Multicampus Research Programs and Initiatives (MRPIs);
- statewide programs to support research on, for example, HIV/AIDS, tobacco-related disease and prevention, and breast cancer; and
- agricultural research through Cooperative Extension as well as organizational units called Agricultural Experiment Stations (described in greater depth later in this chapter).

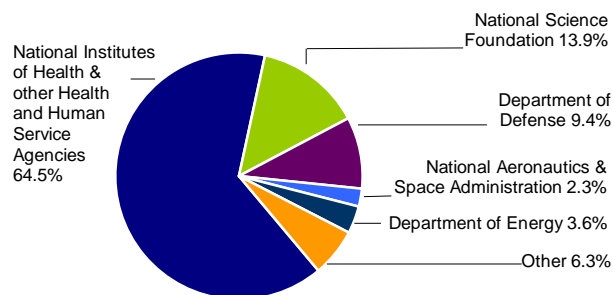
In 2019-20, State Special Funds are expected to provide about \$102.7 million for a range of ongoing research initiatives, including a coordinated statewide program of tobacco-related disease research (including research examining the interaction of cannabis and tobacco, and how cannabis may affect tobacco use and tobacco-related disease) administered by the University (\$11.4 million) and available to researchers from other California institutions on a competitive basis. Part of the State's tobacco tax supports the Medical Research Program (\$70.8 million) and the Breast Cancer Research Program (\$10.6 million). The State personal income tax check-off supports the California Breast Cancer Research Fund (\$178,000) and the Cancer Research Coordinating Committee-managed research program (\$425,000).

California State agencies also provide contracts and grants to the University for research. In 2018-19, expenditures from State agency sources were \$201 million. Major providers of State agency agreements include the California Departments of Public Health, Transportation, Health Care Services, Social Services, and Food and Agriculture, as well as the California Energy Commission, the California Emergency Medical Services Authority, and the California Institute for Regenerative Medicine.

Federal Funds

Federal awards remain by far the most significant source of support for UC's research enterprise and have a profound effect on UC's ability to support graduate students and post-doctoral scholars. The University was awarded about \$3.35 billion in federal research funding alone in 2018-19. Display VII-6 shows the federal research awards distribution by agency. Awards from the National Science Foundation (NSF), National Institutes of Health (NIH), and other Health and Human Services (HHS) agencies accounted for 78%, or \$2.6 billion, of UC's federal research funding, with the Department of Defense (DOD), National Aeronautics and Space Administration (NASA), and Department of Energy (DOE) making up most of the rest. Historically, UC researchers have successfully competed to win nearly 6% and 8% of the NIH and NSF annual R&D appropriations, respectively. The UC system receives more NIH funding than any other entity in the country, and about two-and-one-half times more than the next highest

Display VII-6: 2018-19 Federal Research Awards by Sponsor (Total: \$3.35 Billion)



Federal agency sources supply about 60% (\$3.35 billion) of all research awards. NSF, NIH and other Health and Human Services agencies provide 78% of UC's federal research awards.

Institutions, the Harvard-affiliated Partners Healthcare System.

Federal funds are primarily targeted at research in STEM (science, technology, engineering and mathematics) and medical fields, which combined total over 90% of direct research expenditures each year during the past decade. This proportion should not overshadow the vibrant research activity that also occurs in the social sciences, arts and humanities, and professional disciplines. These fields make important contributions to scholarship, yet have relatively little access to external research funding.

Owing to the dominance of federal funds as a source of UC's research funding, the outcome of the annual federal budget process has the largest impact on the University's research budget. While UC's proportional share has been relatively steady, fluctuations in UC's federal research funding closely parallel trends in the budgets of federal research-granting agencies. Display VII-7 provides a recent history of these fluctuations.

Although federal government funding for all university research decreased between 2005 and 08, an influx of American Recovery and Reinvestment Act (ARRA) funding in response to the Great Recession temporarily reversed the downward trend. UC researchers were awarded \$1.1 billion in ARRA contract and grant funding for research and research infrastructure. As with regular federal research awards to UC, NIH and NSF were the primary

sponsors of these ARRA funds. All ARRA funds were required to be expended by September 2013.

In 2012-13, as a consequence of the Budget Control Act of 2011, federal budget sequestration produced a sharp downturn in research funding to UC and other US academic research institutions, which exacerbated the impacts of the funding trough created after all emergency ARRA funds were expended. The Bipartisan Budget Act of 2013 and subsequent federal appropriations restored some of the R&D funds that had been cut by the 2013 sequester. Moreover, the passage of the Bipartisan Budget Act of 2015 raised discretionary budget limits, allowing federal fiscal year (FY) 2016 and FY 2017 appropriations for federal R&D programs to increase by an average of 8% compared to FY 2015 levels,

With the passage of the Bipartisan Budget Act of 2018, which added \$68 billion to the non-defense discretionary programs above sequestration levels, the Trump Administration's FY 2019 budget request proposed reduced funding, compared to the FY 2018 enacted levels, for several major education, research, and health care programs, including a 6.8% cut to NIH, a 3.8% cut to NSF, and a 13.9% cut to the DOE's Office of Science. Deep cuts were also proposed for student aid programs at the DOE, as well as in health professions training, the arts and humanities, and environmental, earth, and ocean sciences research at several other agencies.

While Congress was able to draft appropriations bills with higher allocations, the chambers faced challenges getting bills passed. By the start of FY 2019 on October 1st, only five bills had been enacted into law: Labor, Health and Human Services, Education and Related Agencies; Defense; Energy and Water Development and Related Agencies; Legislative Branch; and Military Construction, Veterans Affairs and Related Agencies. Instead of accepting the Administration's proposed cuts for the research programs, the bills provided increases, including a 5.4% increase for NIH and a 5.2% increase for the DOE's Office of Science.

Display VII-7: Federal Funding History for UC Research

2004-05 to 2008-09	The federal budget was constrained due to military commitments to Iraq and Afghanistan, and growth of entitlement programs such as Medicare. Growth in research funding for UC again slowed, with annual increases of less than 4%.
2009-10	With an influx of ARRA funding, federal grants and contracts funding to UC increased by 9%.
2010-11	With the end of ARRA funding, the fiscal year award total declined 3%. However, non-ARRA funding from both federal and private sources showed a modest increase, somewhat mitigating the ARRA fall-off.
2011-12	The federal funding base remained essentially unchanged from 2010-11. The most striking change was a 29% increase in funding provided by corporate sponsors for a total of \$464 million in 2011-12. This reflected the slowly improving economic climate and reinvestment in academic R&D.
2012-13	The Budget Control Act of 2011 (BCA) required deep reductions in federal discretionary spending for ten years through 2021. The initial year's sequester cut was about \$3.5 billion in federal academic research support nationwide. This translated to an approximately \$175 million decline in federal research funding for UC and an additional decline of \$25 million in non-research contracts and grants.
2013-14 to 2015-16	Together with the 2013 Bipartisan Budget Act and subsequent federal appropriations legislation, the 2015 Bipartisan Budget Act increased the flow of research funds to UC from federal agencies. This restored funding to pre-sequester levels (adjusting for inflation).
2016-17 to 2017-18	The president introduced the FY 2018 Budget Request with draconian cuts to key education and research programs. Congress passed a two-year budget deal for FY 2018 and FY 2019 that provided increased non-defense discretionary funding, including for education and research programs
2018-19	Even with a higher budget allocation, the president introduced the FY 2019 budget request with significant cuts to key education and research programs. After a 35-day partial government shutdown that lasted through late January 2019, a consolidated appropriations package was signed into law that provided increased non-defense discretionary funding. In July 2019, the President and Congress reached a deal to end sequestration and raise the budget caps for FY 2020 and FY 2021.

Since seven appropriations bills had not been signed into law, Congress passed a continuing resolution (CR) through December 21st, 2018, but continued disagreements between Congress and the administration resulted in a partial government shutdown. Lasting 35 days, the shutdown ended on January 26th, 2019, when a three-week CR was signed into law. On February 15th, a consolidated appropriations package was signed into law, which included funding for the Departments of Commerce, Justice, Homeland Security, Interior and State, as well as for the NSF, NASA, National Oceanic and Atmospheric Administration (NOAA), Environmental Protection Agency, and the National Institute of Standards and Technology. The legislation provided a 4% increase for NSF, a 3.2% increase for NOAA, and an 8.1% increase for NASA's Science programs.

In March 2019, the administration released its FY 2020 budget request. The request called for significant cuts to research and education, meeting the non-defense discretionary sequestration caps set forth in the Budget Control Act of 2011. Specifically, under sequestration, non-defense discretionary programs were set to be cut by \$55 billion in FY 2020, and defense discretionary programs were set to be cut by \$71 billion in FY 2020.

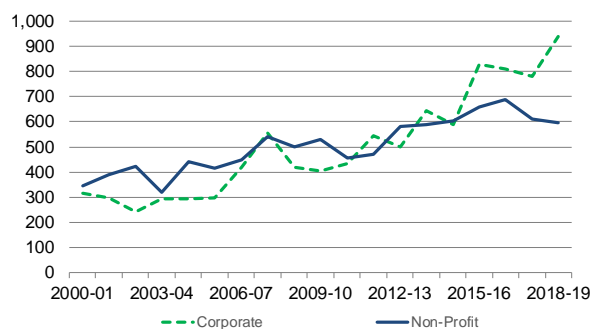
In July 2019, President Trump and congressional leaders reached an agreement to raise federal spending levels. The Bipartisan Budget Act of 2019 amends the Budget Control Act of 2011 and ends sequestration. Specifically, the agreement provides \$624 billion for non-defense discretionary programs in FY 2020, which is a \$27 billion (4.5% increase) above the FY 2019 enacted level. For defense discretionary programs, the agreement provides \$667 billion, which is \$19.5 billion (3% increase) above the FY 2019 enacted level. For FY 2021, the proposed increases are more modest. The agreement provides \$627 billion for non-defense discretionary programs in FY 2021, which is \$3 billion (0.4% increase) above the proposed FY 2020 level. For defense discretionary programs, the agreement provides \$672 billion, which is \$5 billion (0.8% increase) above the proposed FY 2020 level. This agreement provides a blueprint for the next two fiscal years. In September 2019, Congress passed a continuing resolution (CR) to keep the government operational through

November 21, 2019. However, Congress must still pass and the President must sign all 12 appropriations bills that fund the government – or enact another CR – to avert a shutdown and keep the government operating. As such, federal funding for FY 2020 for UC’s core research mission remains at risk.

Private Funds

Research investment in UC by private organizations has kept pace with federal funds as an important source of research funding. From 2000-01 to 2018-19, private support for research has more than doubled in inflation-adjusted dollars (see Display VII-8); the more recent increase in corporate funding is due largely to an increase in the number and cost of clinical trials. Private foundations, industry, and partnerships with faculty at other institutions contributed over a quarter of total research awards in 2018-19. The global economic recession caused a decline in new corporate awards, as shown in Display VII-8, but corporate support has increased since 2010-11, showing that the business community is reinvesting in UC research. Sponsorship from non-profits has been increasing since 2010-11 and exceeds pre-recession levels. Representative awards from non-profits were those from the Henry M. Jackson Foundation (\$28 million), the Bill and Melinda Gates Foundation (\$16 million), and the Simons Foundation (\$16 million).

Display VII-8: Private Research Awards by Type of Sponsor (Dollars in Millions; Inflation-adjusted)

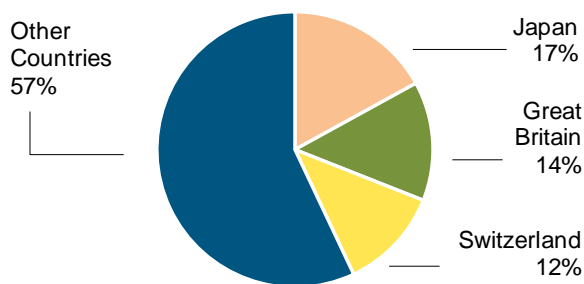


Representing over 26% of all UC research awards, corporate and non-profit funding are above pre-recession levels.

International Funds

Funds from international sponsors, a significant subset of private research awards, are important to the UC research enterprise and enable UC researchers to directly engage with researchers from around the globe. Research is a global enterprise, and overseas investment in UC research is a measure of its quality against international standards. Recent data⁶ indicate that roughly 40% of UC’s scholarly outputs have international co-authors. As shown in Display VII-9, UC has received nearly \$1.5 billion in international research support from over 80 different countries since fiscal year 2011. Great Britain, Switzerland, and Japan contributed 43% of total international funding during that period, primarily in the medical and energy research disciplines.

Display VII-9: Research Awards by International Sponsors FY 2011-19



Although international sponsors provide a relatively small portion of total research funding to UC (\$1.5 billion over nine years, compared to over \$5.8 billion in research awards for fiscal year 2019 alone), this funding provides the valuable opportunity for UC scholars to engage directly with the global research community.

Department of Energy National Laboratories

UC oversees three Department of Energy (DOE) laboratories: the Lawrence Berkeley National Laboratory (LBNL) and two national security laboratories, Lawrence Livermore National Laboratory (LLNL) and Los Alamos National Laboratory (LANL). UC receives fees to manage the two national security laboratories and generally uses some of this money to fund collaborative research projects between UC scholars at the ten campuses, LBNL, LLNL, and LANL. The Lab Fees Research Program (LFRP)

⁶ Source: SciVal@ database, Elsevier B.V., <http://www.scival.com> (downloaded on September 14, 2017).

supports projects on a range of issues, including climate science, cybersecurity, and national security through social sciences.

The LFRP gives UC faculty and students access to premier researchers in fields of strategic importance to the nation, as well as distinctive research facilities. The DOE laboratories also benefit from this program, as it is an important component of their long-term workforce development strategies; undergraduate and graduate students and postdoctoral scholars working with DOE researchers on their projects often go on to build their careers in national security laboratories. UC has managed these DOE laboratories since their creation during and immediately after World War II, and it maintains close intellectual ties to its DOE laboratories through this program. The DOE laboratories are discussed in more detail in the *Department of Energy – UC National Laboratories* chapter of this document.

INDIRECT COST RECOVERY

Budgets for externally funded research projects include direct and indirect costs. The direct costs are those items easily assigned to specific research projects, such as the salaries of the researchers and the equipment and materials that are uniquely used to conduct the research. Indirect costs cover the facilities and administrative expenses that are shared among many projects such as compliance, electricity, and library costs.

At present, UC only recovers a portion of these indirect expenditures and has to subsidize the rest from other revenues. UC's federal Indirect Cost Recovery (ICR) rates are estimated to run 18-20 percentage points below the true indirect costs of conducting research. Moreover, research projects funded by the State of California, corporations, foundations, endowments, and gifts often have policies that preclude payment of indirect costs at anything close to federal levels. These policies and practices place an even greater burden on the University's limited resources.

The University is working to recover more of its indirect costs from research sponsors by increasing its negotiated federal rates and tightening waiver management.

Campuses periodically renegotiate their federal rates, which may rise relatively slowly over time. In future indirect cost rate negotiations, UC intends to continue to press its case to close the gap in the federal rate in comparison to its peer institutions, both public and private, which often receive a higher return on their facilities and administrative costs; progress has already been made on this front at some UC campuses. Although lower negotiated federal rates at public institutions are often justified by federal agencies under the argument that public institutions receive State support, State funding to UC has declined over the years and does not compensate for lower federal rates. Closing the gap in the federal rate would lessen the burden on University resources and allow greater flexibility in the use of discretionary funds.

PROTECTING THE STATE'S INVESTMENT IN THE UC RESEARCH ENTERPRISE

California's long-term investment and planning in support of the wide array of research conducted at UC affects local communities, the State, and the country in countless ways. As discussed above, many industries for which California is among the world's leaders were based on UC research. UC patents have spawned over 1,000 startup companies, and UC researchers attract billions of federal and private research dollars to California, creating thousands of jobs and supporting the graduate and undergraduate students and postdoctoral scholars who will be among the state's next generation of leaders.

Numerous factors pose challenges to the UC research enterprise, including federal funding constraints and increased competition for the world's best scholars and students. While federal FY 2018 and FY 2019 budgets provided increased federal funding for research and initial action for FY 2020 indicates Congress' willingness to raise the budget caps and increase federal funding for many of the research accounts important to UC, the risk of sequestration and the need for Congress to complete action on all 12 appropriations bills prior to the start of FY 2020 places federal funding for UC's core research mission at risk in FY 2020. While the growth of awards from corporate and non-profit sources may help pick up some of the shortfall in federal funding, awards from such sources tend to be less predictable than the proposal-driven federal

award system and often involve waivers leading to recovery of lower percentages of indirect costs.

State investment remains very important to the University's research enterprise. Targeted core support investment provided by the State for the University's research staff and infrastructure would provide increased stability, particularly for research into subject matters deemed more politically charged, such as climate change. It is vital that the State protect and enhance its long-term investment in the University's research enterprise, which, as noted earlier, helps fuel the state economy and provides a positive impact society.

SELECTED RESEARCH PROGRAMS

To illustrate the vitality and strength of the UC research enterprise and its substantial contribution to California and its economy, the rest of the chapter provides examples of currently or previously State-funded research programs.

California Institutes for Science and Innovation

In the early 2000s, the State, UC, and hundreds of pioneering businesses joined together in an unprecedented partnership to create the California Institutes for Science and Innovation (CalISIs), using \$400 million in State-supported capital funding matched two-to-one from federal and private sources. The four Institutes, each jointly operated by multiple UC campuses, engage UC's world-class research faculty directly with California, national, and international companies in tackling large-scale issues critical to the state's economy and its residents' quality of life. Information technology, telecommunications, nanotechnology, quantitative biosciences, health and health care delivery, environmental management, cyber-infrastructure, and energy systems are among the areas of focus for new research and innovation.

The Institutes have vastly increased technology development and exchange with California's industry and government. For example:

- California Institute for Telecommunications and Information Technology (Calit2) is developing innovative approaches to combining high-speed data analysis with fundamental research in nanotechnology (including development of devices and sensors), life sciences (including biomedicine and neuroscience and advances

in wireless wearable or implantable sensors), information technology, and wireless and optical telecommunications. This basic research, in turn, supports development of applications that can address problems affecting all Californians: traffic congestion, environmental problems (water and air pollution, shortage of water, earthquakes, rising sea level, declining snowpack), insufficient energy sources, emergency management, homeland security, and health care. In the new media arts area, researchers are exploring new modes for gaming and on-demand publishing, and working with computer engineers on ways to improve visualization of large data sets.

- California Institute for Quantitative Biosciences (QB3) fosters collaborative research in which scientists take on challenges in molecular biology using the techniques of physics, chemistry, and computer science. Faculty at QB3 have made advances in genome engineering and genetic engineering, in synthetic biology and biofuels, and in developing innovative medical devices. QB3 supports UC researchers and empowers Bay Area entrepreneurs to launch startup companies and partner with industry (including access to research and incubator facilities, internships, mentoring, startup space, seed funding, and legal support with an emphasis on incorporation and intellectual property provided *pro bono*) for entrepreneurial scientists as they bring their research to market.
- California Institute for Technology Research in the Interest of Society (CITRIS) is building on research strengths and developing areas of emerging expertise in information technology to address critical challenges such as designing sustainable energy, water, and transportation systems; improving the human experience through advances in robotics and automation; modernizing health care delivery; supporting interdisciplinary collaboration to inform technology and innovation policy for government agencies, public and private institutions, and international stakeholders; exploring the future of work and how to find ways of working, earning, and learning that support the healthy development of societies, economies, and the workforce; and achieving proportional gender diversity and equitable compensation throughout the professional ranks in the tech industry and academia. In each of these areas, CITRIS researchers are working to solve specific, large-scale problems while simultaneously addressing these themes, such as physical and cyberinfrastructure resilience, big data analytics, and advances in nanotechnology. Advances in information technology allow researchers to recognize interrelationships across critical systems, enabling new approaches to solving problems involving far-reaching societal challenges.
- California Nanosystems Institute (CNSI) believes that major breakthroughs in 21st century science and technology will arise from an understanding of how to

manipulate, control, and manufacture at the nanometer scale. CNSI is focused on exploring the opportunities for leveraging nanoscience research disciplines to support various sectors of California industry. In the energy field, nanoscience is helping create new configurations for solar cells and batteries that will increase efficiency. In health care, these technologies can create new drug delivery systems, and biosensors. In the environment, nanoscale structures could offer new alternatives for water purification and desalination as well as carbon dioxide capture. In information technology, nanomaterials could help engineers design the next generation of microprocessors with higher processing power and lower energy use.

While capital funding allowed the development of these state-of-the-art facilities, funding for operations has been inadequate. Operations require funding for advanced technology infrastructure, specially trained technical personnel to operate the advanced instrumentation, and seed money for building new research teams across disciplines and campuses, as well as for attracting large-scale extramural contracts and grants from industry and governmental sources.

In 2012-13, the State provided \$4.8 million for support of the Institutes; this funding was supplemented by \$8.4 million from both permanent and one-time UC sources. The Institutes continue to be a systemwide priority and, accordingly, base support for the Institutes was increased by \$3.5 million in 2013-14. Since then, total support for the Institutes is \$16.6 million: \$4.8 million in State support and \$11.8 million in other UC funds.

Institute of Transportation Studies

The Institute of Transportation Studies (ITS) is a multicampus research unit (MRU) with branches on four campuses that brings together researchers from more than 30 disciplines across the UC system to address critical State goals in high priority areas such as traffic congestion and management, climate change, urban sustainability and air quality, infrastructure and energy, transportation system performance/optimization, and taxation and finance. Recognized as one of the premier centers of transportation research in the world, ITS researchers are committed to building effective collaborations with state and federal partners to enable new ways of thinking about transportation. ITS researchers are actively working with public and private researchers to make California's

transportation network more effective, focusing on technologies including automated and electric vehicles, new types of pavement that are more resilient and cause less environmental impact, and policies that make existing public transit and ridesharing more effective for users throughout the state.

Since 1947, ITS has been funded with a small portion of the fuel taxes that have supported the Public Transportation Account (PTA) and receives an annual PTA allocation of \$980,000. In fiscal year 2016-17, ITS received a \$3 million one-time funding augmentation, and the MRU is currently receiving \$5 million per year under the terms of the transportation infrastructure package passed by the Legislature in SB 1 in 2017-18. This much appreciated State investment enables ITS researchers to help address California's research priorities, and ITS has developed a multi-tiered research initiative focused on increasing statewide transportation research engagement, including with other UC and CSU campuses.

Multicampus Research Programs and Initiatives

By leveraging the best talent from the UC system to address the most challenging social, economic, and environmental problems, UC's Multicampus Research Programs and Initiatives (MRPIs) make critical contributions that fulfill the University's mission and benefit California. Selected through rigorous independent peer review, MRPI awards fund multicampus research collaborations to advance innovative scholarship, create new knowledge, support graduate and undergraduate students and postdoctoral scholars, and work directly with communities and State agencies to disseminate the expert knowledge of UC faculty in areas of importance to California.

The MRPI awards use modest UC support, typically in the range of \$100,000 to \$500,000 annually per research project, to stimulate multicampus engagement, as well as to dynamically link research across the ten campuses, five medical centers, three national laboratories, the Natural Reserve System, and other research institutes into a network of shared information and resources. These networks, in turn, help secure outside support in emerging areas. Awards are made in all fields of university scholarship. New awards were launched in January 2019, after the biennial competition.

Below are some examples of multicampus research endeavors launched in 2019 that use UC's unique combination of depth and breadth to address critical challenges:

- The UC Initiative to Save California Citrus brings together experts from four UC campuses to explore effective management strategies to try to save the California citrus industry from a deadly disease known as "citrus greening," which is spreading westward across the US. This disease has already cost Florida more than \$1 billion annually in lost revenue and nearly 8,000 jobs. This collaboration among UC researchers at the Berkeley, Davis, Riverside, and San Diego campuses is expected to benefit the citrus industry worldwide.
- Researchers collaborating through a five-campus "policy lab" will partner closely with government agencies to better address inequality and homelessness in California. The team, comprising faculty from the Berkeley, Davis, Irvine, Los Angeles, and San Francisco campuses, will design education and training to enable unsheltered individuals to join the workforce; will evaluate the impact of vocational education and workforce training programs; and will respond to the state's research needs, ensuring that research results inform policymaking.
- California's 21 missions have played a significant role in the state's history. UC researchers will pursue research to create a new, multi-dimensional narrative of California history that includes the voices and perspectives of not only California settlers, but also the Native American and Mexican American communities that helped lay the foundation for the state's development. The team includes faculty experts from the UCLA, Riverside, Santa Cruz and San Diego campuses.
- A team led by UC San Diego researchers, and involving collaborators at the Santa Cruz and San Francisco campuses, will use newly developed methods and analytical techniques to transform traditional approaches to drug discovery, reducing the time to discovery, and increasing the effectiveness of the process. The research aims to create commercially viable technologies that can create jobs and expand the biotechnology industry in California.
- Led by UC Irvine faculty, the UC Collaborative to Promote Immigrant and Student Equity will address the significant academic, financial, and social-emotional strains on the UC system's immigrant students. The project's goal is to reduce inequalities and guide policy across the UC system and beyond. UC Irvine researchers will be joined by colleagues from the Berkeley, Los Angeles, Merced, and Riverside campuses.
- At UC Davis, scholars are leading a team of experts from the Berkeley, Irvine, Los Angeles, Santa Barbara, and San Francisco campuses to shift from fragmented,

discipline-specific approaches of studying childhood disparities to a multidisciplinary, comprehensive examination of the issue. The goal of the UC Network on Child Health, Poverty and Public Policy project is to understand how health and nutrition programs affect the health and development of disadvantaged children and to build relationships with policymakers.

The MRPI portfolio of awards represents a shared resource. Annual funding levels for the program declined by \$11.6 million between 2009-10 and 2014-15. Annual funding has since been partially restored, and in FY 2019-20 is expected to be \$7.8 million.

Natural Reserve System

Established by the Regents in 1965, the Natural Reserve System (NRS) is a unique assemblage of protected wildland sites throughout California. The NRS's marine and terrestrial reserves, field stations, and research centers encompass nearly all of the state's major ecosystems and are managed to support UC research, teaching, and public service programs. The ecosystems and facilities offered by each reserve are available to faculty and students from all UC campuses and other institutions, public and private, from around the world, as well as approved users from the general public. The reserves of the NRS encompass more than 756,000 acres and provide research access to several million more acres of protected public lands. The NRS network spans more than 500 miles north to south and 570 miles east to west. Overall, the NRS is the largest and most diverse university-operated system of natural reserves in the world.

In 2019, the NRS expanded by two reserves, bringing its total to 41 reserves. Point Reyes Field Station, located within Point Reyes National Seashore, is administered by UC Berkeley. Lassen Field Station, part of Lassen Volcanic National Park, will be affiliated with UC Davis. Established in collaboration with the National Park Service (NPS), these partnership reserves provide NRS users, including students and researchers, with access to expansive natural habitats without requiring land purchases. The field stations will attract science research that the NPS can use to inform management of park resources. In the case of Lassen Volcanic Park, the reserve will expand the presence of the University in a region with few postsecondary educational

institutions. Reserve researchers will be encouraged to provide the community with educational talks and hikes.

As part of its mission, the NRS fulfills a variety of public service roles. These include providing public science lecture series; fostering citizen science projects studying topics such as biodiversity and phenology; hosting K-12 classes including children from underrepresented groups from areas such as Los Angeles, Merced, and Mammoth Lakes; and supplying expertise in land management and environmental policy decision-making. Several NRS sites are part of UNESCO-designated biosphere reserves under the Man and the Biosphere Programme, which employs science to harmonize relationships between people and their environments. Reserves provide ecosystems for projects researching subjects such as biodiversity loss, climate change, environmental monitoring, and sustainable development to formulate solutions relevant to local cultures and ecosystems.

The NRS offers educational programs for students at all levels. It has a growing citizen science program, hosts K-12 class field trips, and offers hands-on workshops and training courses that complement a wide range of undergraduate and graduate courses taught at NRS sites. Two NRS reserves host *Adventure Risk Challenge*, a leadership-literacy-outdoor education program offered to high school students from underserved communities. This program improves academic skills, exposes students to a range of natural environments and wilderness experiences, and helps them build the confidence needed to accomplish personal goals, succeed in high school, graduate from college, and become engaged citizens.

In addition, under the California Environmental Quality Act (CEQA), the University of California is designated as a "Trustee Agency" with regard to its NRS reserves. According to CEQA Guidelines (Section 15386), "Trustee Agency" means a state agency having jurisdiction by law over natural resources that are held in trust for the people of the State of California. As one of only four legislatively designated Trustee Agencies in the state, the University bears both a fiduciary and stewardship responsibility to the people of the State of California with regard to its NRS reserves. Together, these responsibilities impose on the University a duty to manage and use its NRS reserve lands

in a manner that protects the long-term integrity of the land's natural resources, avoids or mitigates significant impacts on the reserve environment, and seeks to prevent such impacts on these reserve lands by others. Because of these responsibilities, the Systemwide NRS Office serves as the state-identified recipient of, and responder to, legal environmental notices received by the University as Trustee Agency for projects that may affect its NRS reserves.

Researchers use NRS reserves as outdoor laboratories where they can analyze natural systems, investigate important ecological and evolutionary principles, and attain a better understanding of how humankind affects the earth and how the earth supports humankind. The large-scale canvas of the NRS enables researchers to compare species and conditions in one portion of the state with those in another, at a spatial magnitude relevant to species and their management. The ability to conduct such studies over the long term is crucial at a time when anthropogenic changes are occurring to the environment across the globe.

Research within the NRS addresses such pressing global problems as climate change, wildland conversion, environmental deterioration, declining water quality, and disappearing biodiversity. Reserves are also used to investigate human history in California, look for supernovae, and listen for earthquakes, among many other projects. Research conducted at NRS reserves spans the breadth of intellectual endeavor, from anthropology to the performing arts.

The NRS receives modest funding from State General Funds, which is matched or exceeded by campuses to provide for the responsible administration and stewardship of the reserves. In the last decade, the NRS also benefited from a matching fund program that provided for facilities construction, improvements, and land acquisition via the 2006 Proposition 84 bond fund managed by the Wildlife Conservation Board. In 2018, the NRS was the beneficiary of a second voter initiative, Proposition 68: the California Clean Water and Safe Parks Act. Modeled on the Proposition 84 program, the bond will provide up to \$10 million in matching State funds for infrastructure improvements. The NRS faces significant challenges as it readies its land stewardship, infrastructure, and operations

for the demands of 21st century research, education, and public service.

To address its financial needs, in 2015 the NRS initiated a multi-year capital campaign to raise \$50 million in celebration of its 50th anniversary of operations. This funding will address deferred maintenance, support and strengthen existing NRS research and educational programs, provide student scholarships, and bolster or establish reserve endowments. Well on its way to meeting its fundraising goals, the NRS 50th Anniversary Capital Campaign is critical to achieving financial sustainability for the NRS.

Behavioral Health Centers of Excellence

Beginning in 2014-15, the Davis and Los Angeles campuses launched the Behavioral Health Center of Excellence, with each campus receiving \$7.5 million in funding from the Mental Health Services Act (MHSA) to be expended over 3 years. Working with county and local agencies, the Centers facilitate the rapid dissemination across California of innovative research and evidence-based practices. The Centers will provide pathways for translating research to benefit their communities. At the Los Angeles campus and its Semel Institute, MHSA funding complements the American Recovery and Reinvestment Act-funded Clinical Translational Research Center, as well as research, communication, education, and outreach programs that address disparities across demographic groups through innovations in community engagement and information strategies developed at UCLA's Centers for Health Services and Society. At the Davis campus, MHSA funding supports grants for its researchers, graduate students, postdoctoral fellows and early career faculty whose research in neuroscience, mental and behavioral health, and similar fields are linked to Proposition 63-supported programs, Veteran Affairs, other health organizations, or government-related institutions in Northern California and rural counties.

Agriculture and Natural Resources

University of California Agriculture and Natural Resources (UC ANR) is a statewide network of UC researchers and educators dedicated to the creation, development, and application of knowledge in agriculture, natural, and human

resources. UC ANR's mission is to maintain and enhance connections that fully engage UC with the people of California and achieve innovation in fundamental and applied research and education that supports sustainable, safe, nutritious food production and delivery systems; economic success in a global economy; a sustainable, healthy, productive environment; science literacy; and positive youth development.

UC ANR is unique in its three-way partnership with federal, state, and county governments to provide local and statewide research and extension programs that address the critical issues of California. UC ANR's research and public service programs are delivered through two organizational units: the Agricultural Experiment Station (AES) and UC Cooperative Extension (UCCE). While both units conduct research, UCCE also is the outreach arm for UC ANR, extending research to communities across the state, as described in the *Public Service* chapter.

Approximately 570 AES faculty are located within three colleges on the Berkeley, Davis, and Riverside campuses, as well as at the School of Veterinary Medicine at Davis. There are 109 UCCE specialists serving six campuses as well as 170 UCCE Advisors serving throughout the state. Almost all AES faculty hold split appointments - on average half of their salaries are paid from AES funds for their research responsibilities with the remainder funded from the general campus for their teaching responsibilities. Many UCCE specialists also hold partial AES appointments.

AES faculty represent a variety of disciplines and, consistent with the University's land grant status, are charged with conducting fundamental and applied research related to contemporary and relevant problems facing agriculture, natural resources, nutrition, and youth development. UC ANR statewide programs focus on specific issues that engage AES academics and faculty from all UC campuses, allowing teams to work on complex issues that require multidisciplinary approaches. In addition, UC ANR's nine research and extension centers, located in a variety of ecosystems across the state, provide a core research and extension base.

UC ANR continues to implement its 2016-2020 strategic plan, which includes goals that emphasize generating

revenue and optimizing resource deployment, expanding and diversifying fundraising, and streamlining administrative functions. These goals are focused on addressing facility improvements to support research and on expanding outreach through its programs.

The following are examples of recent research conducted by ANR scientists that help to address the current, complex challenges facing California:

Advancements in Wildfire Management. UC ANR conducts research to understand and develop solutions and adaptation strategies to climate-change related risks. California has faced record-breaking wildfires in recent years. For example, one research program is focused on filling gaps in scientific knowledge to help decision-makers alter the devastating outcomes from wildfires. Fire probability maps have been developed that model extreme fire hazard conditions and fire spread under different future climate scenarios to predict future fire frequencies. This research has directly contributed to more sophisticated modeling of fire hazards and has been incorporated into Cal Fire's evaluation protocol for proposed fuel treatment projects.

Innovation to Address Agricultural Labor Shortages. UC ANR researchers assess and respond to the needs of the agriculture industry. For example, labor availability, training, and cost are among the biggest challenges in the dairy industry. A UCCE dairy specialist based at the UC Veterinary Medicine Teaching and Research Center (VMTRC) in Tulare is helping the state's dairy industry adapt to new technologies as it begins to integrate robots and sophisticated computer software into cow barns to help maintain the supply of wholesome and inexpensive dairy foods for Americans. Researchers from the VMTRC are collaborating with a San Joaquin Valley dairy that has already installed milking robots to study how herd management can be adapted to better serve large-scale dairy herds in California.

Advancements in Pest Prevention and Control. UC ANR research contributes to increased ecological sustainability in agriculture. UC ANR researchers have employed biological controls to address Asian citrus psyllid, a serious invasive pest that spreads a citrus-killing bacterium.

Researchers have imported natural enemies to the psyllid, mass reared them, and released them to reduce the target pest populations. To date, more than 10 million natural parasitoid enemies have been released in California in cooperation with the California Department of Food and Agriculture. Establishment of the parasitoids has been confirmed at 95% of release sites. Parasitoids have spread up to eight miles, and pest populations have declined on average by between 70 and 85%.

Innovation in Food Production and Quality. UC ANR research contributes to increased agricultural efficiency. There are between a half million to a million acres of small grains planted annually in California, which provide both cereals and silage for the livestock industry. Production is dispersed across a broad range of California agroecosystems, soil types, and precipitation totals. UC ANR developed and introduced growers to web-based tools that provide customized results on the most productive and profitable small grain varieties for their growing conditions. After one grower meeting, 72% of attendees indicated that they were likely to use the web-based tools that help users to select superior varieties. As a result, growers, breeders, and other industry professionals are selecting more productive and profitable small grain varieties to grow across the diverse agroecosystems in the state.

Supporting Water Supply Sustainability. UC ANR conducts research to protect California's natural resources. The State Sustainable Groundwater Management Act requires local agencies to provide groundwater basin assessment reports. A UC ANR program has developed decision support tools by modeling soil survey data and developing interactive online tools that help stakeholders characterize water resource challenges and apply mitigating management practices. The program has created an agricultural groundwater banking index, which evaluates the suitability of soils to accommodate groundwater recharge. The on-farm groundwater banking index tool has been integrated into the California Department of Water Resource's land use viewer to support development of the groundwater basin assessment reports.

Research Applied to Nutrition Policy. UC ANR academics in the Nutrition Policy Institute conducted research on child and adult care nutrition. Researchers

then informed decision-makers about the research findings that indicate the readiness of childcare providers to adopt new requirements, which demonstrates the feasibility of implementing the proposed policy. The research informed revisions to the federal Child and Adult Care Food Program.

UC ANR collaborates with the UC campuses, California State University campuses, California Community Colleges, non-profits, the private sector, and a diverse array of stakeholders in all 58 counties. This extensive network of partners enables UC ANR to provide multidisciplinary basic research and applied research needed to address the incredibly complex challenges facing Californians. During the past fiscal year, UCCE and AES researchers filed 18 patents, published about 1,700 peer-reviewed journal articles, filed 22 patents, and participated in over 800 science-based policy engagement activities. Enabling multidisciplinary teams to work on complex issues enhances UC ANR's ability to develop innovative solutions. UCCE then translates UC research into actionable management strategies to protect and support the state's farming, forestry, wildland, and urban environments.

Labor Research and Education

Growing international economic integration, policy changes, transformations in business organization, new technology, and other changes have brought many positive developments, but have also resulted in emerging issues and concerns for communities, researchers, and policy makers. The UC labor program engages in research and education that advances knowledge and understanding of these new challenges and opportunities from a variety of perspectives and disciplines, including historical, comparative, and institutional approaches.

State funding for the Institute for Labor and Employment (ILE) was first provided in 2000-01, when the State added \$6 million in the University's budget to establish a multicampus research program focused on issues related to labor and employment. However, funding for the program was unsteady from 2000-01 through 2007-08. The University has supported labor research by providing \$4 million in 2008-09 and \$2 million in 2009-10 and 2010-11, which was split between the Berkeley and UCLA

Institutes. After some variations in funding in the intervening years, in 2015-16, the Legislature augmented the University's budget to bring permanent funding for the program to \$6 million, or \$3 million for each Center.

SPOTLIGHT ON RESEARCH EXCELLENCE: CARBON NEUTRALITY AND ENERGY SUSTAINABILITY

UC's research enterprise is poised to address the many challenges related to carbon neutrality and sustainability in alignment with President Napolitano's Carbon Neutrality Initiative and the University's goal of becoming the first major research university system to achieve carbon neutrality by 2025. UC's commitment to create public benefit from its research endeavors incentivizes researchers to study both the causes of and the solutions to this global challenge, and to engage students in this important research.

Applied research is paving the way for UC to meet this goal by providing scalable solutions to help California and the world address climate change. To date, the Carbon Neutrality Initiative has supported six rounds of seed funding for applied research to achieve carbon neutrality and climate stabilization, with special emphasis on those projects that advance the frontiers of scientific discovery in climate science and solutions, as well as those with highest potential for technology transfer to other entities and jurisdiction in the state, the nation, or worldwide. Additionally, the Carbon Neutrality Initiative has in the past year seeded the efforts of the California Collaborative for Climate Change Solutions (C4S), a public-private consortium that nurtures the work of researchers and technologists from California research institutions, along with partnering government experts, representatives from commercial and non-profit institutions, foundations, and donors.

To facilitate education about these research priorities at all UC campuses, a faculty steering committee is working closely with the Carbon Neutrality Initiative Faculty Engagement & Education Workgroup and UCOP's Innovative Learning Technology Initiative. Together, they have developed an online course and accompanying e-textbook titled "Bending the Curve: Scalable Solutions for Carbon Neutrality and Climate Stability," which is now

offered on five UC campuses and a growing number of other California, out-of-state, and international universities, with negotiations for course offerings underway with additional universities worldwide. Additional programs highlighted below discuss the wide variety of approaches across topic areas previously discussed in this chapter.

Alternatives to a Fossil Fuel-driven Society

Economical and sustainable alternatives to fossil fuels have the potential to mitigate climate change impact caused by increased levels of atmospheric CO₂. UC researchers are already leveraging their individual expertise and the power of systemwide and industry collaboration to find alternative fuel solutions.

Based at the Merced campus, UC Solar is dedicated to designing and developing innovative solar energy generation technologies that are more efficient, more affordable, and easier to integrate into existing infrastructure. In collaboration with utilities, industry and other stakeholders, UC Solar researchers are creating solar technologies that can be brought to the marketplace quickly and integrated seamlessly.

In biofuels research programs, UC researchers are transforming biomass sugars into energy-rich alternative transportation fuels by applying advanced biological knowledge to the area of bioenergy development. At the Department of Energy-funded Joint Bioenergy Institute, UC Berkeley and Lawrence Berkeley National Laboratory researchers use the latest tools in molecular biology, chemical engineering, computational and robotic technologies, along with pioneering work in synthetic biology to create alternatives to petroleum, diesel, and jet fuel.

Other research at UC Davis' Energy Institute and UC Riverside's Center for Environmental Research and Technologies focuses on turning agricultural and human organic waste into biogas as a renewable alternative to natural gas. This effort relies on optimizing microbiological and chemical engineering processes to develop facilities that can be deployed at a local level or integrated with existing waste management infrastructure.

Energy Distribution Infrastructure

Alternative and potentially decentralized modes of energy

production will demand novel approaches to energy distribution that cannot rely on existing infrastructure. Biofuels do not need the traditional refining capacities needed for oil-derived liquid fuels, but may need other chemical modifications requiring new and different industrial facilities. In the future, synthetic biology may allow us to create these chemical modifications biologically. Fuel transportation and storage may need to change to accommodate a more decentralized production model. Alternative electrical generating modalities, with many smaller generation sites rather than large centralized plants, will likewise challenge our current power distribution system. This "grid" will have to be flexible and adaptable to balance supply and demand across large regions to address these challenges. UC researchers are exploring potential solutions including electric vehicle integration, automated demand response, microgrid deployments, distributed and renewable supply integration, energy storage integration, and the development and construction of efficient, environmentally-sensitive, sustainable power generation and energy conversion worldwide.

Energy Efficiency

Another important element of energy sustainability is energy efficiency. Whether through transportation systems or green building design and construction, this challenge requires additional research to develop an energy-efficient public and private infrastructure. UC researchers are at the forefront of many of these areas.

In 2006, the Energy Efficiency Center (EEC) was established at the Davis campus, and was the first university-based energy efficiency center in the United States to focus on accelerating the development and commercialization of energy efficiency technologies and training future leaders in energy efficiency.

UC researchers are also revolutionizing the lighting industry. Shuji Nakamura, a key member of the Solid State Lighting Center at the Santa Barbara campus, was a recipient of the Nobel Prize in Physics in 2014 for research, which led to the invention of efficient blue light-emitting diodes (LEDs). These devices have transformed the lighting industry, including production of bright and energy-efficient white light sources.

Beyond lighting, next-generation building design must incorporate energy efficiency into its architectural and engineering fabric. Sutardja Dai Hall, the CITRIS headquarters at UC Berkeley, has been outfitted as a demand-response technology testbed. Its goal is to develop intelligent control of the building's electricity load and to reduce peak energy demand by at least 30%. Starting with the building's modern energy management system, the project's strategy is to mine increasingly granular data via extensive sub-meters in the building, monitoring everything from central lighting and HVAC to distributed energy use at every outlet. An energy "gateway" gathers the data, communicates with individual occupants, and negotiates with building controls for the best response to the user's demand. The project aims to move building occupants from manual control of energy usage – each flip of a switch or crank of a thermostat – to fully automated response and control, based on increasingly better data.

Climate Adaptation and Mitigation/Environmental Monitoring and Assessment

Understanding how ecosystems and societies adapt to climate change is essential to creating approaches that mitigate the harmful effects of such changes. Any attempted mitigation needs to recognize and adapt to underlying biological and societal constraints. Technologies for monitoring and assessing adaptation and mitigation are being developed across UC in both rural and urban settings. Notable examples include:

- The UC Natural Reserve System Climate Modeling Network, which consists of 19 new automated weather and climate monitoring stations operating in UC's Natural Reserves. The stations are all constructed from similar, high precision equipment and use the same set of data collection protocols.
- The Sierra Nevada Research Institute at the Merced campus uses the San Joaquin Valley and the Sierra Nevada range as its "outdoor laboratories" to conduct basic and applied research on the impact of rapid population growth; competition for natural resources; air, water and soil pollution; climate change; and competing land usage.
- The California Center for Sustainable Communities at the Los Angeles campus creates real-world solutions that improve the sustainability of urban locations by developing cities as centers of sustainability that mitigate impact on their surrounding landscapes.

Policy, Economics, and Behavioral Impacts

No matter what technological solutions are created, understanding how society will interact with them will be critical. Policies may attempt to dictate implementation, but economics and human behavior will determine whether they succeed. Across UC, social science researchers and economists are already tackling these issues, focusing on energy and climate policy, energy efficiency, market-based environmental regulations, and behavioral economics, while also working to bridge the gap between the frontiers of economic and scientific energy research and the marketplace. Policy centers throughout the UC system are leveraging world-class scientific expertise and engaging directly with decision-makers to deliver credible, relevant, and timely information and analysis. The Center for Energy and Environmental Economics at UC Berkeley's Energy Institute, for example, focuses on energy and climate policies and environmental regulations, energy efficiency, and behavioral economics to bring the outputs of economic and scientific energy research to the marketplace. The Center for Climate Change Solutions at the Los Angeles campus operates at the intersection of science and policy by convening researchers and decision makers to catalyze and create effective policies to address the threats and challenges posed by climate change, and to conduct cross-disciplinary research on technological and knowledge-based solutions to the causes and consequences of climate change. Other policy-centric research centers include the Climate and Energy Policy Institute at the Berkeley campus, which provides a forum for research on a wide range of aspects of climate policy spanning social sciences, engineering, and climate science; and the Policy Institute for Energy, Environment and the Economy at the Davis campus, which promotes research-supported policy-making in California, nationally, and internationally on issues related to low-carbon transportation, clean energy, and climate change adaptation.

Public Service

Public service at UC includes a broad range of activities organized by the University to serve state and local communities; students, teachers and staff in K-12 schools and community colleges; and the public in general. Consistent with its mission as a land grant institution, UC's public service programs help improve the quality of life in California by focusing on major challenges, whether in business, education, health care, community development, or civic engagement, that affect the economic and social well-being of its citizens.

State funds support a variety of public service programs at UC. This chapter describes five major State-supported public service efforts:

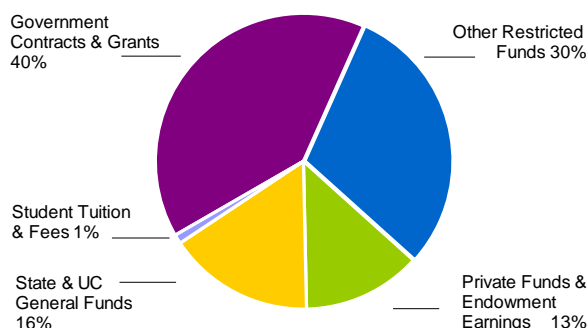
- Student Academic Preparation and Educational Partnerships,
- the California Subject Matter Project,
- COSMOS,
- Cooperative Extension, and
- the Charles R. Drew University of Medicine and Science.

Campuses also conduct other public service programs that are supported by State funds, as well as by student tuition and fees, user fees, and other non-State fund sources. These programs include arts and lecture programs and student- or faculty-initiated community service projects.

STUDENT ACADEMIC PREPARATION AND EDUCATIONAL PARTNERSHIPS

Student Academic Preparation and Educational Partnerships (SAPEP) programs seek to raise student achievement levels and close achievement gaps among groups of students throughout the K-20 (kindergarten through university) pipeline, tasks critical to keeping California's economy competitive. In fall 2018, students from a large majority of traditional California public high schools matriculated to UC: UC freshman enrollees came from 1,348 (82.1%) of the 1,642 schools open in 2017-18. However, over half of these students came from 223 (16.5%) of the 1,348 high schools. With a focus on serving students who attend historically under-resourced schools in California, UC's 13 SAPEP programs reached students at

Display VIII-1: 2018-19 Public Service Expenditures by Fund Source (Total: \$712 Million)



While State funds play an important role in UC's public service programs, significant funding for Cooperative Extension and other major programs is generated from government contracts and grants and private sources.

California, UC's 13 SAPEP programs reached students at more than 1,400 K-12 public schools and all 114 community colleges in 2017-18, raising college eligibility rates, increasing transfer from community college to four-year institutions, and preparing undergraduates for graduate or professional education.¹ The Regents have identified closing achievement gaps, improving access to college, and increasing diversity at UC as among the University's highest priorities.

Through SAPEP programs, UC reaches students and schools in most need of assistance. Most schools served by UC SAPEP programs are high need, as evidenced by high percentages of students at these schools eligible for free or reduced-price meals under the National School Lunch Program (NSLP). More precisely, 75% of the high schools served by SAPEP's three largest high school programs in 2017-18 were those in which more than 60% of all students were eligible for free or reduced-price meals. By contrast, 55% of all California public high schools in 2017-18 enrolled students in which more than 60% were eligible for free or reduced-price meals.

The impact of the University's SAPEP programs on students from underrepresented groups is significant. While

¹ The most recent SAPEP data are for the 2017-18 year unless otherwise noted.

enrollment at UC is not the specific goal of UC's academic preparation programs, the ability of students to compete successfully for UC admission is a strong indicator of increased access to postsecondary opportunities. At the same time, these programs increase the diversity of the University. For example, in fall 2018, 15.5% of African-Americans and 17% of Chicano(a)/Latino(a) new UC freshman from California public high schools had been 12th-grade participants in UC's student academic preparation programs in 2017-18.

UC has created innovative ways to help generate systemic changes in California's educational system through long-term partnerships with K-12 schools, businesses, community-based organizations, and parents and families. For example, the University's K-20 Regional Intersegmental Alliances align SAPEP programs with their local and regional K-12, community college, educational, community, and business partners. Activities and strategies vary by region depending on the needs and priorities of partner schools, and include direct student and family services, as well as academic enrichment and student academic and career advising; dissemination of research and best practices on teaching and learning; professional development and coaching in specific content for teachers; and collaboration with schools, districts, and community agencies on grant writing and resource development. Alliances design systemic strategies for improving academic achievement and college and career readiness for the state's underserved student populations.

The University collaborated with these partnerships to implement the Transcript Evaluation Service (TES), which tracks coursework progress and UC/CSU eligibility for individual students and entire schools. In addition, TES provides data for school administrators to diagnose course completion obstacles and improve UC/CSU course requirement completion on a school-wide basis. In 2014, TES was recognized by Achieve² for the role it plays in diagnostic assessment of where students are falling short of the courses needed for admission to the state's

HISTORY OF STUDENT ACADEMIC PREPARATION PROGRAMS AT UC

As early as 1872, then-University President Daniel Coit Gilman called on the University to collaborate with schools in enhancing student preparation for a college education so that the "work of the University shall clearly forward the welfare of the state, of the whole body politic."

The current generation of student academic preparation programs took shape in the 1960s, when the civil rights movement drew attention to issues of access to the University. During this period when there were no fiscal constraints on enrollments, the Regents addressed access issues primarily through aggressive and innovative admissions policies.

In the 1970s, the University began providing underrepresented students with academic assistance and information to help them meet University admission standards. The Legislature passed the Meade Bill in 1975 (AB 2412), marking the first time that State resources were devoted to increasing the number and persistence of eligible underrepresented group students. With it was born the concept of developing a pipeline of academic preparation programs beginning with students in the seventh grade and continuing through their college careers. Academic preparation programs expanded gradually during the 1980s and early 1990s.

In July 1995 the Regents adopted Resolution SP-1, which eliminated consideration of race, ethnicity, and gender in UC admissions. At the same time, the Board called on the President to appoint the Outreach Task Force (OTF) to identify ways in which outreach programs could help to ensure that the University remain accessible to students from educationally disadvantaged backgrounds. Coupled with the passage by California voters of Proposition 209 in fall 1996, which essentially placed the tenets of SP-1 in the State's Constitution, these events elevated academic preparation programs to become the University's most critical tool for promoting access to the University for educationally disadvantaged students in California.

university systems.³ A 2012 TES implementation study conducted by MPR Associates, Inc. presented evidence of the potential efficacy of TES, particularly for those schools that implement TES consistently for three or more years.

² Founded in 1996 by a bipartisan group of governors and business leaders, Achieve is an independent, nonpartisan, nonprofit education reform organization that works with states to raise academic standards and graduation requirements, improve assessments, and strengthen accountability. Achieve helped develop the Common Core State Standards.

³ Achieve, January 2015, "Closing the Expectations Gap: 2014 Annual Report on the Alignment of State K-12 Policies and Practice with the Demands of College and Careers."

The report also found that UC application rates of graduates from TES schools increased over time. By year five, TES schools, on average, have experienced a 4.1% increase in graduates applying to UC compared to their base year.

Program Descriptions and Outcomes

In addition to partnerships with K-12 and community organizations, UC's portfolio of SAPEP programs raises college eligibility rates, increases transfer from community colleges to baccalaureate-degree granting institutions, and prepares undergraduates for graduate programs.⁴

College Access and Preparation. With a focus on academic advising and building college knowledge, the **Early Academic Outreach Program (EAOP)**, UC's largest academic preparation program, helps students from underserved schools and colleges complete a rigorous college preparatory curriculum in high school, complete UC and CSU coursework and exam requirements, and apply for college and financial aid. EAOP provides academic enrichment, such as intensive workshops and summer courses; advising; test preparation; and information for parents such as how to apply for financial aid and college options in California. EAOP also supports schools by providing educators with valuable assistance in updating A-G course lists and submitting A-G courses for review, and explaining UC admissions and eligibility to teachers and counselors.

With a focus on science, technology, engineering and mathematics (STEM) and workforce preparation, the **Mathematics, Engineering, Science Achievement (MESA)** program helps middle and high school students excel in math and science so they can graduate from college with degrees in science, engineering, computer science, or other math-based fields. MESA offers classes during the school day that allow advisors to work with students on academics and MESA activities. MESA's academic development curriculum includes math and science coursework that is A-G approved and based on California Math and Science Standards. MESA also offers

SAPEP FUNDING SINCE 1997-98

In 1997-98, after the adoption of SP-1 and Proposition 209, the Legislature considered the University's academic preparation programs to be an effective means by which to increase access to college for educationally disadvantaged students and promote diversity at UC. The University's budget for student academic preparation programs grew from \$18.1 million in State and University funds in 1997-98 to a peak of \$85 million in 2000-01.

Due to the State's fiscal crisis in the early 2000s, the SAPEP budget was reduced by \$55.7 million over several years, including a 56% reduction in 2003-04, bringing the total budget to \$29.3 million in 2005-06.

In 2006-07, a \$2 million augmentation to expand community college transfer programs brought the SAPEP budget to \$31.3 million.

The Governor's proposed budget for 2009-10 originally slated SAPEP programs for elimination, but the Legislature converted the cut to an undesignated reduction. As permitted by the 2009-10 Budget Act, campuses were instructed to limit cuts to any program within the portfolio to no more than 10%, which was only half the percentage cut to the University's State funds.

For 2010-11, the Budget Act called for the University to maintain funding for SAPEP programs at 2009-10 levels.

In 2011-12, the University experienced a 21.3% reduction in State funding. Budget Act language authorized reductions of no more than that percentage in SAPEP programs; however, the SAPEP portfolio ultimately experienced an overall budget reduction of 17%.

Consistent with Budget Act language, the programs in the SAPEP portfolio were not eligible for budget reductions in 2012-13 as the Governor's revenue-enhancing initiative passed in November 2012 and no further cuts were made to UC's budget. These programs also have not been eligible for budget reductions since that time; campuses have been asked not to reduce funding for these programs. The SAPEP budget currently is \$24.6 million in State and University funds.

SAPEP programs use State resources efficiently. The cost per student of most programs is substantially less than the cost per student of comparable federally funded programs. In 2017-18, programs leveraged the State and University investment of \$24.6 million by securing an additional \$33.7 million in support of K-20 efforts.

⁴ Detailed descriptions of each SAPEP program can be found in the most recent SAPEP legislative report, available at <https://ucop.edu/diversity-engagement/resources-publications/sapep.html>.

individualized academic planning, tutoring, math workshops, study groups, and career exploration services. Parent involvement workshops and events help parents learn how to become effective advocates for their children's academic success.

With a focus on literacy development, **The Puente Project** prepares middle and high school students – many of whom are English language learners – for college through rigorous academic instruction in writing and literature, intensive college-preparatory counseling, and mentoring from successful members of the community. Students in the program study with the same Puente-trained English teacher for ninth and tenth grades in a college-preparatory English class, work closely with a Puente-trained counselor to prepare an academic plan and stay focused on their goals, participate regularly in community involvement activities, and attend field trips to college campuses. Other programs promoting college access and preparation include **ArtsBridge**, **Student-Initiated Programs**, **UC Scout**, **University-Community Engagement (UCE)**, and **UC Links**.⁵

UC's college access and preparation programs have been recognized nationally as models of best practice. Specific program achievements include the following:

- Increased college eligibility: participants are more likely to complete the A-G courses required for UC/CSU eligibility and to take the SAT or ACT than non-participants. In 2017-18, 79% of 12th-grade participants in EAOP, MESA, or Puente had completed A-G coursework (compared to 49% of all California public high school graduates⁶), and 67% took the SAT or ACT (compared to 61% of non-participants at the same schools); and
- Increased college attendance: class of 2018 high school seniors from UC's three largest college access and preparation programs enrolled at California public colleges at higher rates than their peers in fall 2018: EAOP (65%), MESA (73%), and Puente (69%). An estimated 41% of all California public high school graduates enrolled at California public colleges.⁷

- Increased Community College Transfer: SAPEP programs also promote transfer from community college to baccalaureate-granting institutions.

Community College Articulation Agreements are agreements between individual California community colleges and individual UC campuses that define how specific community college courses can be used to satisfy subject matter requirements at UC.

ASSIST, California's official statewide repository for college course articulation and transfer information, provides counselors and students with detailed course transfer and articulation information to streamline the transfer process.

The **MESA Community College Program (MCCP)** provides rigorous academic development for community college students who are pursuing transfer to four-year universities in majors that are calculus-based. All MCCP students are required to attend Academic Excellence Workshops, student-led supplemental instruction/study groups that emphasize the most challenging aspects of classes within the student's major. Additional services include individualized academic planning; college orientation for math-based majors; career exploration and professional development; and summer internships in business, industry, and academia.

Students enrolled in **The Puente Community College Program** take a demanding two-course English sequence, receive transfer requirement counseling, and meet regularly with a Puente-trained mentor from the professional community. Teachers and counselors receive training in innovative counseling and teaching methodologies for educationally disadvantaged students.

Community College Transfer Preparation (CCTP) Programs increase opportunities for California community college students to transfer to four-year institutions by providing comprehensive academic guidance and support for prospective transfers. Services include assistance with course selection, informational workshops on academic

⁵ More information about other UC college access and preparation programs is available at <https://ucop.edu/diversity-engagement/resources-publications/sapep.html>.

⁶ Comparison data are for the Class of 2018, the most recent year available from the California Department of Education's DataQuest (see <http://dq.cde.ca.gov/dataquest/>).

⁷ Comparison data are for full-year 2018-19 enrollments by the Class of 2018, available from the California Department of Education's DataQuest (see <http://dq.cde.ca.gov/dataquest/>).

requirements for transfer admissions, and professional development and training for community college counselors and faculty. Students in transfer programs are more likely to be admitted to UC and more likely to enroll when admitted. Participants who applied to UC in fall 2018 had an 87% admission rate (compared to 74% for all CCC applicants), and of the participants who were admitted, 82% enrolled (compared to 74% for all CCC admits).

Other CCTP program achievements include:

- In 2017-18, an estimated 2 million website visitors used an online tool called ASSIST (Articulation System Stimulating Interinstitutional Student Transfer; see <http://www.assist.org>) to generate more than 29 million articulation reports in order to determine course transferability between CCC, CSU, and UC systems. In addition, as of 2017-18, ASSIST tracks more than 100,000 CCC-UC articulation agreements by major, more than 180,000 CCC-CSU agreements by major, approximately 50,000 CCC courses that can be transferred by general credit to any UC campuses, and over 22,000 Intersegmental General Education Transfer Curriculum approved CCC courses that can be transferred to any CSU or UC campus;
- UC continues to simplify the transfer process for prospective students and counselors by implementing tools like the online UC Transfer Admissions Planner (UC TAP) to help more than 360,000 CCC students stay on track to transfer successfully;
- Of those MESA Community College Program participants who transferred to a four-year campus in the most recent evaluations of the program, 100% majored in a STEM field; and
- Puente Community College Program students maintain enrollment continuity more often than all California Community College (CCC) students statewide. For Puente participants in the most recent evaluation of the program, 83% enrolled in three continuous semesters (or four continuous quarters) as compared with 76% of all CCC students statewide.

Graduate and Professional School Preparation. UC's SAPEP programs also prepare and encourage high-achieving undergraduates from educationally disadvantaged communities to pursue graduate and professional level training.

Leadership Excellence through Advanced Degrees Program (UC LEADS) places juniors and seniors who have experienced conditions that have adversely affected their advancement in their field of study in two-year intensive research experiences with faculty mentors.

Summer Research Internship Programs (SRIP) also provide intensive research experiences. **UC Law Fellows** and **Post-baccalaureate Medical School Programs** provide preparation for graduate study through academic skills building, test preparation, and mentoring.

Achievements of these programs include:

- Nearly two-thirds (64%) of graduate and professional school academic preparation program participants enroll in graduate or professional school; and
- UC's post-baccalaureate premedical programs increase the number of students from disadvantaged backgrounds who enroll in medical school.

CALIFORNIA SUBJECT MATTER PROJECT

The California Subject Matter Project (CSMP) is a statewide network of nine subject-specific professional learning projects that provide rigorous training programs to enhance learning for all students. CSMP engages K-12 educators with university faculty in all disciplines from UC, CSU, and independent higher education institutions to collaboratively design and deliver intensive institutes for education professionals that promote teachers' understanding of K-12 content and instructional strategies. CSMP encompasses the course content represented in California's K-12 standards and frameworks, and covers all of the academic disciplines required to meet college entrance (A-G) requirements, including arts, history/social science, international studies, mathematics, physical education/health, reading and literature, science, world languages, and writing. The network reaches teachers and students across California through 90 regional sites located at university and college campuses statewide.

During 2017-18, CSMP provided more than 1,900 professional learning programs to over 27,000 teachers and school administrators from over 4,000 schools. Almost half of these schools were high-need (based on the state's designation of Local Control Funding Formula plus (LCFF+) status, meaning more than 75% of students were English learners, foster youth, and/or eligible for free/reduced-priced meals under the National School Lunch Program). To understand the impact of its professional learning on teachers and their students, CSMP administered participant surveys to educators attending professional development programs that are characteristic of CSMP – high-quality, intensive, and incorporating follow-up sessions. Results

from the most recent surveys in 2017 indicated the majority of participants (80%) ranked CSMP as better than other professional development activities in which they have participated, which is consistent with the findings of previous surveys by an external evaluator (SRI International). In addition, educators anticipate that participating in CSMP professional development will greatly enhance their strategies to deliver instruction (70%), improve their students' level of engagement (59%), and increase their professional collaboration with other teachers (53%).

State funding has remained at \$5 million per year since 2003-04. In 2018-19, CSMP received an additional \$3.4 million in federal funding from the CA Department of Education (CDE) and this same amount is anticipated for 2019-2020. The federal funds figure represents a nearly 30% decrease since 2009-10. CSMP will also receive \$6.7 million in one-time state funding to expand the capacity of the projects to provide professional learning services to K-12 teachers. These funds will be transferred to CSMP from CDE and are to be allocated to the nine projects as follows: \$1,250,000 each for Writing, Reading and Literature, Mathematics, and Science and \$340,000 each for Arts, Global Education, History-Social Science, Physical and Health Education, World Languages. CSMP leverages State and federal funding with foundation grants and district contracts to support the professional development programs. CSMP was originally authorized in 1998 and was reauthorized in 2002, 2007, and again in 2011. The 2011 bill (SB 612) extended authorization to June 30, 2017 and incorporates all nine projects into the legislation. In 2016, a statute was enacted that eliminated the June 30, 2017 sunset provision noted in SB 612.

COSMOS

The California State Summer School for Mathematics and Science (COSMOS) provides an intensive academic experience for students who wish to pursue advanced mathematics and the sciences and prepare for their education in these areas. COSMOS is a four-week-long residential academic program for top California high school students in mathematics and science. COSMOS course clusters address topics not traditionally taught in high schools such as astronomy, aerospace engineering,

biomedical sciences, computer science, wetlands ecology, ocean science, robotics, and game theory. The program takes place each summer on the Davis, Irvine, Santa Cruz, and San Diego campuses. Cluster sizes tend to vary from about 15 to 30 students, and the student to academic staff ratio is typically around 5:1. In summer 2019, 876 students, drawn from a pool of 4,833 applicants, were selected to attend COSMOS.

In 2010-11, COSMOS received \$1.9 million in State funds, a 10% reduction from State support in 2007-08. Consistent with Budget Act language, the University reduced State support for COSMOS in 2011-12 to \$1.7 million, also a 10% reduction compared to the prior year. In the 2014-15 Budget Act, the Governor eliminated provisional language associated with several programs, including COSMOS, which had specified the funding level expected by the State for the budget year. While the Governor's action provides UC with more flexibility in terms of setting funding levels for COSMOS, UC is not proposing any funding reductions for this program, which remains funded at \$1.7 million. The California Education Code stipulates that the State fund at least 50%, but not more than 75%, of the program's actual costs; funds are also provided by participants with the ability to pay and from private sources. AB 1663 (2012) amended the Education Code to set the program's tuition level for California residents at \$2,810, and AB 616 (2017) authorized the current fee provisions – which allow for annual increases of up to 5% – of the COSMOS program until January 1, 2023. For summer 2019, the tuition level for California residents attending COSMOS was \$3,932.

UC COOPERATIVE EXTENSION

University of California Agriculture and Natural Resources (UC ANR) is a statewide network of UC researchers and educators dedicated to the creation, development, and application of knowledge in agricultural, natural, and related human resources. UC ANR's mission is to maintain and enhance connections that fully engage UC with the people of California and achieve innovation in fundamental and applied research and education that supports sustainable, safe, nutritious food production and delivery systems; economic success in a global economy; a sustainable, healthy, productive environment; and science literacy and youth development programs. UC ANR's unique three-way

partnership with federal, state, and county governments provides local and statewide research and extension programs that address critical issues in California. UC ANR's research and public service programs are delivered through two organizational units: UC Cooperative Extension (UCCE) and the Agricultural Experiment Station (AES, which is described in more detail in the *Research* chapter of this document). While both conduct research, UCCE is also UC ANR's outreach arm, extending UC research to communities across the state with a presence in all 58 counties.

UCCE links educational and research activities to the resources of the U.S. Department of Agriculture (USDA), land grant universities, and county administrative units in order to solve local issues in agriculture, natural resources, and human development. More than 290 UCCE academics (specialists and advisors) partner with AES faculty, state and federal agencies, and local clientele. UCCE specialists (located in UC ANR's six colleges/schools on the Berkeley, Davis, Merced, Santa Barbara, and Riverside campuses) conduct research, develop new technologies, transmit results to communities statewide, and serve as a campus link for county-based UCCE advisors.

Academic UCCE advisors in local communities conduct applied research and translate and test research findings for solutions to local problems. This statewide network of local UCCE sites is often the face of UC to Californians who may never set foot on a UC campus. UCCE advisors work with teams of staff and volunteers to deliver applied research and science-based education programs in the areas of agriculture, natural resources, nutrition, and related human resources. Collaboration with citizen volunteers is an integral part of educational efforts in the 4-H Youth Development, California Naturalist, UC Master Gardener, and UC Master Food Preserver programs. UCCE advisors provide local residents and industry groups with science-based information through workshops, demonstrations, field days, classes, media, and websites.

UC ANR statewide programs engage UC ANR academics and faculty from the ten UC campuses, the National Laboratories, and medical centers to leverage resources to work on complex issues that require multidisciplinary approaches. These programs and institutes include, for

example, Integrated Pest Management, the Agricultural Issues Center, the California Institute for Water Resources, and the Nutrition Policy Institute. In addition, there are nine research and extension centers (RECs), located in a variety of ecosystems across the state.

The UCCE base budget is composed of federal land grant, State, county, and other funds. Through its partnerships and collaborations, UCCE generates additional extramural grant funding, further increasing its ability to address local and statewide issues. UC ANR also explores opportunities for private-public partnerships to support UCCE programs, including funding of new, high-priority positions.

Through its 2025 Strategic Vision, UC ANR prioritizes five strategic initiatives: Sustainable Food Systems; Endemic and Invasive Pests and Diseases; Sustainable Natural Ecosystems; Healthy Families and Communities; and Water Quality, Quantity, and Security. In the past fiscal year, UC ANR had about 800,000 direct educational interactions with adults and youth.

The following are a few examples of UCCE public service projects that address challenges facing California:

Promoting Economic Prosperity in California. UC ANR conducts research and education activities that help agriculture and resource managers improve management practices, efficiency, and reduce inputs to improve economic returns and financial stability. As one of many examples, according to the last United States Department of Agriculture Census in 2012, only 25% of small farms in Placer and Nevada Counties reported net gains. As a result of a UCCE small-farm economics program, participating producers used the information to develop risk assessments, business plans, and determine the appropriate scale of their operations to meet profitability benchmarks. In contrast to the 2012 agriculture census, 86% of participants in UCCE farm business planning workshops reported being profitable and paying themselves a salary.

Building Climate-resilient Communities and Ecosystems. UCCE programs develop solutions to increase the resilience of agriculture, communities, and natural ecosystems to growing risk of wildfire hazards. Following large-scale devastating wildfires in 2017 and

2018, UC ANR academics provided science-based workshops and trainings in northern and southern California on fire recovery and prevention practices. Specifically, ranchers affected by fires used what they learned to be able to file loss claims, and homeowners developed action plans to prepare their properties for fire prevention. Additionally, a collaborative group of resource agencies, public works agencies, and non-profits used science-based research provided by a UC ANR academic to develop a strategic plan for the recovery of watersheds after fires and debris flows.

Safeguarding Sufficient, Safe, and Healthy Food for all Californians. UC ANR develops science-based solutions and helps inform the agriculture industry to ensure a safe food supply. In 2018, UC ANR academics delivered both online and in-person farm food safety workshops to almost 600 urban farmers throughout California. Sixty eight percent of 90 survey respondents indicated that they used the information provided in the workshops to identify food safety risks on their farm, and 53% developed and implemented a food safety plan for their farm.

Protecting California's Natural Resources. UC ANR collaborates with partners and agencies to increase ecological sustainability. To reduce the loss of oak trees from a pest called the Gold Spotted Oak Borer (GSOB), UC ANR researchers developed and shared best management practices, integrated pest management strategies, and mapped the spread of GSOB. As a result of their effort, there are 14,800 acres of treated demonstration woodlands involving over 100 cooperators at 11 locations. GSOB maps have been used by the California Department of Forestry to develop and amend the zone of infestation for GSOB, calculate the rate of spread, identify communities at risk for GSOB, and to show the impact of UCCE outreach to slow human-transportation of GSOB to new locations.

Developing a Qualified Workforce for California. UC ANR manages the innovative, research-based UC 4-H Youth Development Program. UC ANR academics provided professional development opportunities to school teachers and staff who make up many of the 19,000 dedicated adult 4-H volunteers. These youth development professionals learned skills and adopted practices that they used to deliver evidence-based curriculum to 4-H youth. Volunteers

engaged youth (ages 5 to 19) in every California county by leading youth in hands-on lesson study and projects in which youth were empowered to take on leadership roles in research, teaching, and service projects to improve their communities. In 2018, 93% of youth reported having the emotional skills necessary for academic and workplace success. Over 80% agreed 4-H helped them explore careers and find a career that is a good fit. Additionally, the 4-H Youth Development Program has expanded the Teens as Teachers delivery model into 23 counties. This cross-age teaching model prepares and engages teen volunteers to deliver curriculum weekly to younger peers and contribute to their communities. In these ways, UC ANR contributes to increased workforce competence and increased civic engagement.

Promoting Healthy People and Communities. On a statewide level, UC ANR implements two main nutrition education programs. The UC Expanded Food and Nutrition Education Program (EFNEP) provides nutrition education to limited-resource families in 24 California counties. In 2018, EFNEP provided over 58,000 hours of program delivery in six languages reaching more than 51,000 adults and youth. Evaluations of adult participants indicated that 95% improved at least one diet quality practice.

The CalFresh Healthy Living, UC Program (CFHC-UC), offered in 32 California counties, uses schools as the hub to engagement communities and offer comprehensive, evidence-based nutrition and physical activity education. In 2018, the program was delivered in 563 schools and other youth program sites serving 110,000 youth and adults. For example, school districts in San Mateo and Santa Clara Counties was that school districts adopted strategies to introduce 36 local produce items to the cafeteria menus. As a result, student selection, consumption, and interest in new produce items increased. Importantly, parents shared the desire to purchase new produce items because their children tried and liked them at school

Developing an Inclusive and Equitable Society. In 2018 the UC ANR 4-H Youth Development Program completed the UC 4-H Latino Initiative pilot to develop culturally relevant and responsive programs to welcome Latino youth, families, and volunteers to 4-H in seven counties. Local programs developed partnerships with other organizations

servicing Latinos and identified the needs of the California Latino community. The Latino Initiative's local 4-H Career Pathways programming saw an almost 50% increase in Latino youth participation. In 2018, 7,549 youth and 29 peer educators were engaged. These youth members reported that they feel they can "weigh the pros and cons of future college options."

The people and resources of the UC ANR system serve every county in California – connecting resources, forming integrated teams to work on complex issues, and developing innovative multidisciplinary solutions. UC ANR works with stakeholders to determine the best use of academic positions and program funding to all 70 campus and off-campus locations throughout California. Delivering this mission requires over 300 Memoranda of Understanding; chief among those are century-long relationships with county governments that provide funding and other resources for UCCE county-based operations. Programmatic priorities are derived through consultations with external stakeholders, local Extension Advisors, Program Councils, campus Deans, and through local community leaders and legislators.

CHARLES R. DREW UNIVERSITY OF MEDICINE AND SCIENCE

The Charles R. Drew University of Medicine and Science (CDU), a private, nonprofit corporation with its own Board of Trustees, conducts educational and research programs in South Central Los Angeles. Since 1973, the State has appropriated funds to UC to support a medical student education program operated by the Los Angeles campus in conjunction with CDU. State General Funds are provided to CDU under two contracts administered by the University. One contract provides State support for medical education; the other a separate public service program that funds activities in the Watts-Willowbrook community.

Historically, CDU received State funds through the University's budget for the training of 48 medical students (including 24 third-year and 24 fourth-year students) and 170 medical residents. The historical activities in the joint CDU/UCLA instructional program are described in an affiliation agreement with the David Geffen School of Medicine at the Los Angeles campus for student clerkships. Students participating in the joint medical education

program earn a Doctor of Medicine (MD) degree, which is granted by the David Geffen School of Medicine.

In 2008, CDU expanded its medical student enrollment by four students (per class) as part of the UC Program in Medical Education (PRIME) initiative. The Los Angeles campus' PRIME program is designed to train physician leaders to be experts and advocates for improved healthcare delivery systems in disadvantaged communities. In 2019-20, 116 medical students are enrolled across a four-year curriculum in the joint UCLA-CDU program. In 2019, 76% of UCLA-CDU graduates matched in primary care residency programs, with 28% going into Family Medicine.

In 2007, Los Angeles County's King/Drew Medical Center (KDMC), the primary teaching hospital for CDU, was closed due to serious concerns about patient care by the Los Angeles County Board of Supervisors, which had administrative and fiscal responsibility for the hospital. As a result of the closure of the hospital, CDU voluntarily closed its residency programs.

Following the KDMC closure, the University worked with state, county, and other local officials to open Martin Luther King Jr. Community Hospital in July 2015. CDU has successfully re-established residency training with the 2018 Residency Match. CDU received initial accreditation from the Accrediting Council of Graduate Medical Education (ACGME) in July 2016, received specific programmatic accreditation for Match participation in Psychiatry in April 2017, and received six first-year residents in the 2018 Match. CDU submitted its Family Medicine residency program application to the ACGME in summer 2017, receiving programmatic accreditation for Match participation in February 2018 and eight first-year residents in the 2018 Match. Other specialties under consideration for future graduate medical education programs include Primary Care Internal Medicine, General Surgery, Physical Medicine and Rehabilitation, and Orthopedic Surgery.

In July 2018, CDU was formally notified that the WASC Senior College and University Commission (WSCUC) reaffirmed accreditation for the institution for a period of ten years. The WSCUC commended CDU for, among other things, their strategic plan and strong commitments to the

community, social justice, and community service; addressing health disparities; and producing health professionals who return to and serve the community.

Consistent with language in the Budget Act, UC reduced support for CDU by 5% in 2011-12. Since then, funding for CDU instructional and public service programs currently is \$8.3 million in State General Funds and \$475,000 in matching funds. In 2019, one-time funding of \$7.5 million was included in the Budget Act of 2019. The Budget Act specified that \$5 million is earmarked for enrollment growth and student support services and \$2.5 million for academic facilities upgrades. The one-time funding will facilitate academic program expansion including undergraduate, graduate, and Graduate Medical Education programs; facilitate the planning and design of new student housing and campus facilities; and seed the funding for building out the CDU physical plant infrastructure to accommodate the University's 2,000 student enrollment objective.

The University provides additional support from medical student Professional Degree Supplemental Tuition revenue and other University funds to support CDU.

Academic Support – Libraries

Individually and collectively, the University of California (UC) libraries provide access to the world's knowledge for the UC campuses and the communities they serve, supporting UC's missions of teaching, research and public service. The intellectual capital of the libraries – their acclaimed research collections, innovative services, user-friendly facilities, and highly trained staff – constitutes an unparalleled resource for UC and all Californians.

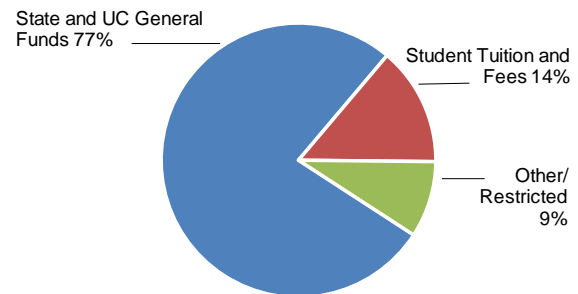
As intellectual hubs rooted in the physical and digital realms, the UC libraries are a network of locations, services and resources that are actively shaped to better serve today's diverse students, scholars and disciplines.

Transformative library services enable our scholars to create, publish, share, store, search for and deliver information with ease. Through content licensing, digitization and open access strategies, the libraries provide access to far more information than they physically possess and store. Many of UC's ever-growing digital collections and information services are accessible to all who seek such services and collections worldwide.

Campus libraries offer welcoming, inclusive and technology-rich learning spaces to meet the myriad of user needs and to maximize intellectual potential and student success. Information professionals guide students through their scholastic careers, and our digital scholarship centers, data labs and makerspaces introduce new opportunities to learn, experiment and create. UC special collections, unique on each campus, allow researchers of all levels to work with rare and original materials in the types of carefully managed spaces that libraries excel at providing.

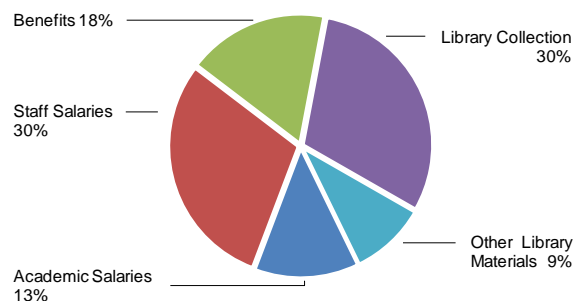
The UC Libraries' system includes more than 100 libraries at the ten campuses, two regional library facilities and the California Digital Library. The UC Libraries hold more than 40 million print volumes, as shown in Display IX-3; in the United States, UC's collection is surpassed only by the Library of Congress.

Display IX-1: 2018-19 UC Libraries Expenditures by Fund Source (Total: \$292 Million)



The vast majority of the libraries' budget is derived from core funds (State support, UC General Funds, and student tuition and fee revenue).

Display IX-2: 2018-19 UC Libraries Expenditures by Category (Total: \$292 Million)



Nearly 40% of the libraries' expenditures provides for the purchase, preparation and use of library materials in a variety of formats (print, digital, multimedia, and objects). As in other functions of the University, salaries and benefits are the largest collective expenditure.

In 2018-19, the economic value of the physical collection was estimated at \$1.1 billion with special collections valued at an additional \$545 million, or 4.8% of UC's net capital assets. More than 1.4 million items were loaned by UC libraries in 2018-19, including over 136,000 intercampus library loans and copies. Use of the libraries' digital collections continues to expand, as more materials are available primarily or solely online. In 2018, more than 40 million journal articles were downloaded by UC faculty, researchers, and students.

UC LIBRARIES EXPENDITURES

Expenditures for the libraries totaled \$292 million in 2018-19. Over 90% of the budget is derived from core funds (State support, UC General Funds, and student tuition and fee revenue). Significant restricted funding is provided from endowment earnings and private gifts and grants. As in other areas of the University, the libraries' greatest expenses are salaries and benefits for more than 2,000 employees, including professional librarians, IT professionals, and support staff. Compensation and benefits represented 60% of the libraries' expenditures in 2018-19. Library materials, which include books, subscriptions and licensing of digital materials, made up 40% of expenditures.

The libraries currently face numerous budgetary pressures. The amount of scholarly information being produced is rapidly growing, as is the number of academic programs offered systemwide, resulting in greater need for new information resources. Students continue to demand long hours and extended access to facilities that provide technologically well-equipped learning environments. In the past, the State provided substantial support for UC's strategy to promote systemwide library development. Over the last 20 years, however, the State has been unable to provide sufficient funding to confront persistent price increases for books, journals and databases, which consistently outpace inflation, as shown in Display IX-4.

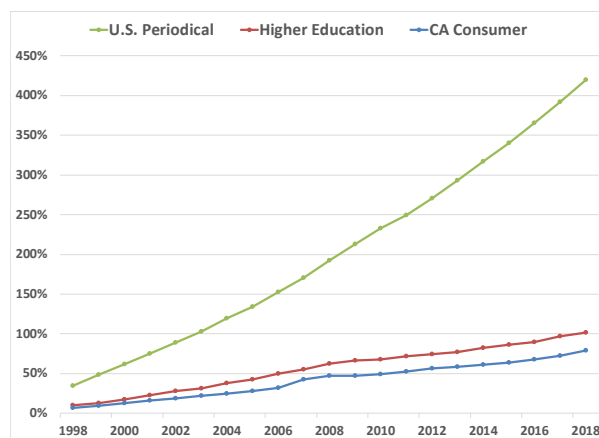
To address past funding shortfalls for collections and services, the libraries identified and developed strategies to reduce costs and promote more efficient use of resources. As shown in Display IX-5, these strategies, which include reduced purchasing costs through interlibrary lending, lower capital costs resulting from use of shared off-site facilities, and savings from systemwide digital collections development and shared journal subscriptions, result in annual savings and cost avoidances of \$124.1 million. As described later on in this chapter, the libraries are also active leaders in numerous global initiatives to transform scholarly publishing into a system that is not only economically sustainable but also ensures the widest possible access to the scholarly record.

Display IX-3: UC Libraries At-A-Glance,

Number of Libraries	100+
Library Holdings	
Print volumes	40,800,000
Audio, video, and visual materials	17,800,000
Maps	7,700,000
Microcopy and microfilm	26,000,000
Average e-books on each campus	1,200,000
Digitized UC volumes in HathiTrust	4,400,000
Electronic-journals licensed collectively	120,000
Digitized items in campus collections	46,000,000
CDL/Shared print collection	860,000
Library Use	
Digital articles downloaded	40,400,000
Total library loans	1,400,000
Intercampus loans	137,000
Regional facility loans	105,000
Reference inquiries (total)	136,000
Virtual reference inquiries	46,000
Participants in instructional programs	153,000

Note: Data reported by all 10 campuses and the CDL. Numbers rounded.

Display IX-4: Consumer, Higher Education, and Periodical Price Increases



Over the last 20 years, the cost of periodicals has risen more than 287%, while the consumer price index has risen only 67% during the same period. This cost increase has not changed in the digital environment.

Though the libraries maximize systemwide savings and cost avoidances through various collaborative efforts, library budgets continue to face pressure.

THE UC LIBRARIES PROGRAM

The UC Libraries employ a systemwide strategy that emphasizes collaboration. Each year, the Council of University Librarians (CoUL) and Direction and Oversight Committee (DOC) develop shared strategies to optimize

the resources and expertise of the UC Libraries. The most recent planning document, “University of California Libraries, Systemwide Annual Plans and Priorities, FY 2019-2020,” underscores the goals of the University to advance long-term access to digital content, improve systemwide library management systems, and collaboratively transform scholarly publishing and communication.

Open access remains a widely-held institutional value at UC. As outlined in the UC Libraries’ 2018 *Pathways to OA*¹ report, the libraries are concurrently investing in multiple open access strategies, at the campus and systemwide levels, to achieve the shared goal of making the products of scholarship freely and readily available to anyone in the world. Such efforts include directly engaging scholarly publishers, outreach to journal editors, support for academy-owned open access infrastructure and investment in UC open access publishing. The libraries also provide crucial implementation support for the Academic Senate and Presidential open access policies², which commit the deposit of UC-authored scholarly articles to free and open digital repositories, like UC’s eScholarship.

In partnership with the UC Academic Senate, the libraries are now utilizing systemwide journal contract renewals to negotiate and implement transformative open access agreements with scholarly journal publishers. UC’s transformative open access model converts subscription payments into open access publishing payments and seeks long-term sustainability through a cost neutral conversion to open access. The libraries signed their first transformative agreement with Cambridge University Press in April 2019³, and multiple other publishers are eager to be UC’s next partner in transformative open access.

The UC Libraries’ leadership in resource stewardship is long established, as evidence by **UC’s Regional Library Facilities (RLFs)** in Richmond and Los Angeles, which currently house more than 15 million volumes of enduring research value deposited by campus libraries. An

expansion at the northern RLF is underway and will help ensure the preservation of UC’s library collections for successive generations.

The RLFs are also a major component of the UC Shared Print Collection, which contains single print copies of material for systemwide use and archival purposes. The shared print and other RLF collections alleviate campus space pressures by enabling more on-campus shelving to be reassigned for student study and other high-value uses. In order to achieve even further economies of scale, the UC Libraries actively participate in two extramural shared print programs. The libraries are founding members of the **Western Regional Storage Trust (WEST)** program to build a shared print journal archive with other institutions in the western region of the United States, and the HathiTrust Shared Print Program to build a shared print monograph archive with peer institutions in North America. Both programs help libraries at UC and beyond make more efficient use of limited storage space while ensuring the continued preservation of print holdings.

Display IX-5: Estimated Annual Savings from Library Innovations and Efficiencies (Dollars in Millions)

Resource Sharing	\$26.7
Regional Libraries Facilities	\$24.8
California Digital Library	<u>\$72.6</u>
Total	\$124.1

Discovery and delivery services for print and digital library materials provide faculty, students and staff with seamless access to the UC Libraries’ extensive research collections. These core services include campus-specific catalogs, the systemwide Melvyl online catalog for discovery of materials across UC and worldwide, direct access to online journal articles, overnight courier services, interlibrary lending, and if needed, immediate scanning and electronic delivery of articles. In June 2019, the libraries launched a Request for Proposal for a systemwide integrated library system (SILS) that will reaffirm our commitment to allow our patrons to interact

¹ See <https://libraries.universityofcalifornia.edu/about/initiatives/scholarly-communication>.

² See <https://osc.universityofcalifornia.edu/open-access-at-uc/open-access-policy/>.

³ See <https://osc.universityofcalifornia.edu/2019/04/cambridge-uc/>.

with the campus and systemwide collections, including RLF holdings, as if they were a single collection. A SILS will move the UC Libraries from ten independent systems to a single, shared state-of-the-art system; it will result in operational efficiencies, improved systems infrastructure and better end-user experience for discovery and access to UC's vast print and digital collections

With systemwide co-investments from the campus libraries, the **California Digital Library (CDL)** makes available nearly 120,000 online journals to UC students, faculty, researchers and staff, creating a robust baseline of access across the system that is then further bolstered by unique, locally tailored campus collections. CDL leverages the "power of ten" in their negotiations, bringing tens of millions of dollars in annual savings for digital serials and other materials. The centralized CDL negotiation and acquisition teams streamline the procurement process and create substantial efficiencies for the system. CDL's open access publishing and repository platform, eScholarship, hosts over 230,000 open access publications, including 82 journals, showcasing research from all ten campuses. Items in the eScholarship repository have been accessed 61 million times globally since its inception in 2002. The CDL also works in partnership with campuses to provide systems and tools for managing the University's research outputs, and to share scholarly materials more broadly. CDL's Online Archive of California (OAC) provides access to 50,000 finding aides to enable researchers to locate archival and unique materials from 280 libraries, archives and museums across the state. For users interested in viewing digitized versions of the content discoverable in OAC, CDL's Calisphere provides free online access to over one million digital objects from throughout California, including images, texts, and recordings. The libraries and CDL support research data management

and preservation for UC authors and scholarly community members through a variety of tools and services, including: the Merritt digital repository for managing, sharing, archiving and preserving digital content; and the Data Management Planning Tool (DMPTool) to help researchers create effective data management plans required by funding agencies.

The UC Libraries further augment the University's capacity through strategic partnerships with the broader library community and other collaborators. Since 2006, more than 4.3 million books from the UC Libraries have been scanned through participation in **mass digitization** partnerships with Google and the Internet Archive. These projects preserve content and expand the libraries' ability to provide faculty, students and the general public with access to collections. Leveraging these mass digitization partnerships, the UC Libraries are founding partners in the **HathiTrust**, a collaboration of more than 100 top-tier research universities to archive and share their digitized book collections. Through the HathiTrust, UC gains access to millions of digitized books in the public domain, and benefits from cost-effective and reliable storage and preservation of its own digitized book collections. The CDL is also a service hub for the **Digital Public Library of America**, a platform that brings together the diverse digital collections of libraries, archives and museums from all over the country. In 2018, CDL and the Dryad Digital Repository announced their partnership to develop an open, community-supported data publishing and curation tool for researchers. Utilizing the technical platform developed by CDL for its Dash data sharing tool, CDL and Dryad relaunched the new Dryad data repository in fall 2019.

All of the UC libraries' activities support the mission of UC, promoting the university as a leading research engine in the growth of California, the advancement of knowledge, and the education of California's students.

Academic Support

Academic support includes various clinical and other support activities that are operated and administered in conjunction with schools and departments. These activities support the University's teaching, research, and public service missions. The University's clinics, the largest of these activities, are largely self-supporting through patient fees.

Expenditures for academic support totaled \$2.2 billion in 2018-19 (see Display X-1). In addition, other non-clinical activities provide academic support to campus programs, experiences for students, and valuable community services. Academic support activities are funded from a combination of State funds, student or other fees, contracts and grants, and other revenues.

UNIVERSITY CLINICS

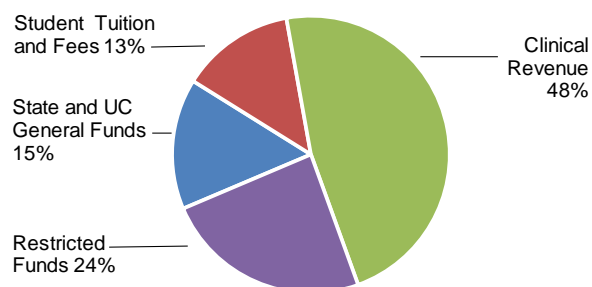
Occupational and Environmental Health Centers

The northern (Berkeley, Davis, and San Francisco) and southern (Irvine and Los Angeles) Centers for Occupational and Environmental Health (COEH) were created in 1979 as a joint project of the California Department of Industrial Relations and UC. The centers serve Californians through programs and partnerships designed to deepen understanding and awareness of occupational and environmental hazards and to prevent disease, fatalities, and injuries in the workplace and the community. Each center serves as the focal point for occupational health-related activities on the campuses in its geographical area, thereby strengthening the University's programs of teaching, research, and public service in these fields.

Community Dental Clinics

The on-campus and community dental clinics at Los Angeles and San Francisco serve primarily as teaching laboratories in which graduate professional students pursue organized clinical curricula under the supervision of dental school faculty. The clinics provide a spectrum of teaching cases that are generally not available in the on-campus clinics, thus enhancing the required training in general and

Display X-1: 2018-19 Academic Support Expenditures by Fund Source (Total: \$2.2 Billion)



Expenditures totaled \$2.2 billion in 2018-19. Clinics and other services are largely self-supporting.

pediatric dentistry. While providing valuable clinical experience for students, the clinics also serve to meet the dental health needs of thousands of low-income patients, many of whom would not otherwise receive dental care.

Optometry Clinic

The optometry clinic at Berkeley serves primarily as a clinical teaching laboratory for the School of Optometry, while providing a complete array of visual health care services for patients from throughout the region. At the clinic, optometry faculty supervise students in the clinical aspects of the prevention, diagnosis, and remediation of visual problems. In addition, students receive clinical experience at various Bay Area community health centers, which exposes them to a broad range of cases and provides a much-needed public service.

Veterinary Clinics

The veterinary medicine clinical teaching facilities at Davis and in the San Joaquin Valley, and the satellite site in San Diego, are specialized teaching hospitals and clinics that support the UC Davis School of Veterinary Medicine. In these facilities, faculty train students enrolled in veterinary medicine in the clinical aspects of diagnosis, treatment, prevention, and control of diseases in animals.

Neuropsychiatric Institutes

UC's two neuropsychiatric institutes, the Semel Institute for Neuroscience and Human Behavior at the Los Angeles campus and the Langley Porter Neuropsychiatric Institute at the San Francisco campus, are among the state's principal resources for the education and training of psychiatric residents and other mental health professionals, and for the provision of mental health services. The primary missions of the institutes are to treat patients with diseases of the nervous system and to strive for excellence in the development of approaches to problems associated with developmental, behavioral, psychological, and neurological disorders.

OTHER ACADEMIC SUPPORT PROGRAMS

In addition to the clinics, UC operates a wide variety of other programs that are administered by schools and departments and enhance the University's teaching, research, and service activities. Examples include the following.

Laboratory School

The UCLA Lab School, which is part of the UCLA Graduate School of Education and Information Studies, serves as a laboratory for exploring innovative ideas about teaching, learning, and child development for children in Pre-K-6 grades. The results of our studies are shared through collaborations with educators from other schools, through conferences, workshops and site visits, and in print publications and other media. Through this mix of strategies, UCLA Lab School teaching practices and research outcomes have been widely shared with schools across the globe.

Vivaria and Herbaria

Each campus operates vivaria and herbaria, which are centralized facilities for the ordering, receiving, and care of all animals and plants essential to instruction and research.

Museums and Galleries

The University operates many museums and galleries. These cultural resources are open to children and adults throughout the state and are largely self-supporting, generating revenue through ticket sales. Many of UC's museum and gallery holdings are also available to UC faculty and students conducting research.

Teaching Hospitals

The University operates academic medical centers in Sacramento, Irvine, Los Angeles, San Diego, and San Francisco. A critical mission of the medical centers is to support the clinical teaching programs at the University's 19 health professional schools and 12 hospitals, collectively referred to as UC Health.

Core clinical learning experiences in the health sciences take place in the UC medical centers and other UC-sponsored teaching programs. The University's academic medical centers serve as regional referral centers providing tertiary and quaternary clinical services that are often available only in an academic setting. Additionally, the medical centers provide the entire spectrum of clinical services, including primary and preventive care.

UCLA and UCSF medical centers ranked sixth and seventh in the nation, respectively, and all five of UC's medical centers rank among California's top ten hospitals, according to U.S. News & World Report's 2019-20 survey. UC Davis, UCLA, and UCSF also ranked No. 1 in their metropolitan areas, while UC Irvine was ranked best in Orange County (fifth in the LA metro area).

In 2010, the medical centers collectively formed the UC Center for Health Quality and Innovation (CHQI), which achieved clinical quality improvements such as decreases in length of stay, complication rates, and readmission rates, as well as significant savings and new revenues. In response to changing needs, the CHQI function evolved into the office of Quality and Population Health (QPH). This function leads a data-driven, system-wide approach to advance the quality and efficiency of care delivery, improve patient outcomes, and reduce costs.

The medical centers are internationally recognized as leading sites for research and development of new diagnostic and therapeutic techniques. A highly diverse portfolio of clinical research is funded by government agencies, foundations, and private industry. All of the UC medical centers currently operate as or support Level 1 Trauma Centers, capable of providing the highest level of specialty expertise and surgical care to trauma victims.

Display XI-1: UC Medical Centers At-A-Glance, Fiscal Year 2018-19*

The University's five academic medical centers are a critical part of California's health delivery system.

Licensed acute care inpatient bed capacity	3,911
Inpatient days	1,092,522
Outpatient clinic visits	4,876,439**
GME residents	5,687

Total operating revenue	\$12.7 billion
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*UCSF Medical Center financial statements include UCSF Benioff Children's Hospital Oakland, a blended component unit of the University of California. Total outpatient visits include hospital and physician clinics, emergency room encounters, and home health and hospice visits.

**UC's six Schools of Medicine, among other health professional schools, work in conjunction with UC's medical centers to provide patient care. Specifically, UC's medical schools and specialty clinics provided 2,787,820 outpatient clinic visits in 2018-19, for a total of 7,664,259.

With their tripartite mission of teaching, public service, and research, the UC academic medical centers benefit both California and the nation. They provide excellent training for tomorrow's health professionals, educational opportunities for community health professionals who participate in the University's clinical teaching and continuing education programs, and healthcare services to thousands of patients each day.

UC's patients generally have more complex medical conditions than patients at many other institutions, conditions that often can only be managed by quaternary and tertiary care referral hospitals such as UC's academic medical centers. The case mix index, which measures patient complexity and severity, has historically been higher than the state average. In alignment with the mission of advancing medical science and educating health professionals, the UC academic medical centers also provide a critical service in maintaining healthcare access to medically vulnerable populations. This maintenance includes being major providers of care to Medicare- and Medicaid- (known as Medi-Cal in California) eligible patients. With the expansion of the Medi-Cal population under the Affordable Care Act, the University has also

experienced a significant increase in Medi-Cal patient volume and corresponding costs. For example, at UC Irvine Health and UC Davis Health, Medi-Cal patients represent 45% and 41%, respectively, of inpatient days. Systemwide, more than 35% of inpatient days for 2018-19 are associated with Medi-Cal enrollees (see Display XI-2).

TEACHING HOSPITAL FUNDING SOURCES

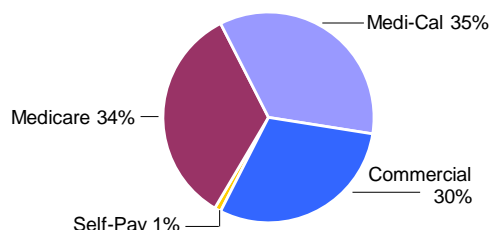
Changes in healthcare delivery, financing, and coverage are generating unprecedented pressures across the nation's healthcare system. In order to thrive in this era of rapid change and respond to pressures by both public and private sectors to contain healthcare costs and to ensure revenue and funding sources remain stable, UC Health is working proactively to improve healthcare quality and outcomes, increase market share to remain competitive and successfully leverage its collective strengths, decrease expenses, and improve alignment between the faculty practice groups and medical centers.

The University's teaching hospitals earn revenue from a variety of sources, each with unique economic constraints, issues, and policies. In 2018-19, approximately 95% of total operating revenue for the medical centers came from the provision of clinical care. These revenues are critical not only to operation of the medical centers, but also to the schools of medicine. The medical centers provide financial support to UC Health Schools of Medicine to fund operating activities, clinical research, faculty practice plans and other programs. In 2018-19, the support was \$606 million. The shifting political environment of healthcare signals the possibility of changes to the hospitals' revenue sources over the next several years.

Private Health Plans and Managed Care

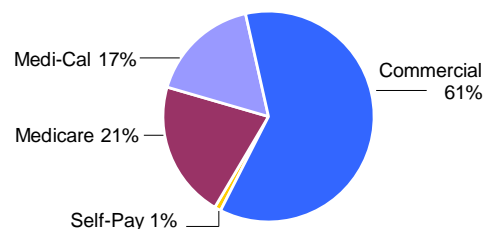
Private health plans, in all forms, represent the largest source of revenue for the medical centers. Revenue from this source was \$7.8 billion in 2018-19. Healthcare, including hospital services, is increasingly paid for by "managed care" plans that incentivize reduced or limited cost and utilization of healthcare services. Managed care plans pay providers in various ways, including negotiated fee-for-service rates and "capitation" payments under which hospitals are paid a predetermined periodic rate for each enrollee in the plan that is assigned or otherwise directed to

Display XI-2: 2018-19 UC Medical Center Inpatient Days by Patient Type*



*Inpatient days associated with UCSF include UCSF Benioff Children's Hospital Oakland, a blended component unit of the University of California.

Display XI-3: 2018-19 UC Medical Center Revenue by Source* (Total: \$12.7 Billion)



*UCSF Medical Center financial statements include UCSF Benioff Children's Hospital Oakland, a blended component unit of the University of California.

receive care at a particular hospital. Under each model of managed care, providers assume a financial risk for the cost and scope of institutional care provided to a plan's enrollees. If a medical center is unable to adequately contain its costs, net income is adversely affected; conversely, medical centers that improve efficiency or reduce incurred costs maximize revenue.

Medicare

Patient care reimbursements from Medicare, the federal governmental health insurance system for eligible elderly and disabled persons, constituted 21%, or \$2.4 billion, of medical center revenues in 2018-19 (see Display XI-3). Each of the medical centers is currently certified as a provider for Medicare services and intends to continue to participate in the Medicare program. Periodically, the requirements for Medicare certification change, which can require UC to alter or upgrade facilities, equipment, billing processes, policies, personnel, and services in order to remain certified.

Medicare Graduate Medical Education Payments

Graduate Medical Education (GME) programs provide in-depth residency training in specialties of medicine after graduation from medical school. All of UC's academic medical centers provide residency programs and fund an increasing number of them without traditional federal support.

In the 1960s, Medicare began paying for a substantial portion of the cost of residency programs. In 1997, it limited the number of residencies that would be funded, and the 'cap' has not been revised upward despite a 30% increase in the number of medical students nationally, a 21% growth in US population, an age wave of seniors with more complicated health care needs and a growing number of licensed physicians nearing retirement.

Medicaid also provides support for GME in 42 states and the District of Columbia. Each Medicaid program is a partnership between federal and state government. Although California has the largest number of teaching hospitals and the second-largest number of medical residents in the nation, California's Medi-Cal program does not provide an explicit earmarking of Medicaid payments to support GME.

As a result, UC medical centers began absorbing costs for residency training slots. In 2018-19, UC Health trained 5,891 health sciences residents. Of those, 5,687 are medical residents trained through UC-sponsored and long-standing UC-affiliated family medicine programs. This currently includes 857 positions for which UC received no federal GME direct support.

Additional funding for California GME programs comes through a portion of Proposition 56 funds, as well as from the Song-Brown Healthcare Workforce Training Program, which seeks to increase the number of students and residents receiving quality primary care education and training in areas of unmet need throughout California. Despite this funding, UC has absorbed an estimated \$70 million in unreimbursed GME costs.

Medicaid/Medi-Cal

Medicaid is a program of medical assistance, funded jointly by the federal government and the states, for low-income individuals, persons with disabilities, and their dependents.

Under Medicaid, the federal government provides grants to states with medical assistance programs consistent with federal standards. Medicaid programs are operated by states and use various mechanisms to pay hospitals. Almost one-third of Californians are now covered by Medi-Cal. According to data from the Office of Statewide Health Planning and Development, UC Health is the third largest provider of inpatient care for Medi-Cal enrollees – despite constituting less than 6% of the non-federal acute care beds in the state - and the fourth largest provider of hospital-based outpatient care. Despite significant Medi-Cal patient volume, Medicaid/Medi-Cal provided 17%, or \$2.1 billion, of medical center revenue in 2018-19. The State selectively contracts with general acute care hospitals to provide inpatient services to Medi-Cal patients, and each of the medical centers currently has a Medi-Cal contract. UC Health values the significant role Medi-Cal plays in preserving and improving the health of the state. Costs associated with Medi-Cal services are not fully covered. It is estimated that Medi-Cal reimbursement covers an estimated 50% to 60% of the cost of care per patient.

Current Medi-Cal Waiver. California has established a modified Medicaid financing system through Section 1115 of the Social Security Act. Section 1115 allows states to waive certain federal statutory Medicaid program requirements or obtain federal matching funds for costs or investments that would not otherwise be allowed under the Medicaid program. This flexibility allows states to test innovative approaches to care, in an effort to improve quality, access, and efficiency. At the end of 2015, the Centers for Medicaid and Medicare Services (CMS) approved California's latest Section 1115 Waiver, "California Medi-Cal 2020 Demonstration," on behalf of the 21 public hospital health systems in California. The University of California's five academic medical centers are an integral component of the public hospital safety net for California, and the Medi-Cal waiver is a high priority since it shapes how the Medi-Cal program is funded and structured. The State submitted its official acceptance of the CMS Standard Terms and Conditions (STCs) and expenditure authorities on January 28, 2016.

Medi-Cal 2020 is designed to give public systems the incentive and opportunity to support their safety net role

and their ability to compete. The California Medi-Cal 2020 demonstration waiver consists of several components, including:

- The Public Hospital Redesign and Incentives in Medi-Cal program (PRIME), which builds on the successful Delivery System Reform Incentive Payments program. PRIME will provide participating entities with incentive payments based on achievements of specified benchmarks and metrics.
- \$750 million over five years for a Dental Transformation Initiative.
- A number of independent assessments of network adequacy, access to care, uncompensated care, and hospital financing.

Additionally, the waiver provides the University's academic medical centers with a fixed percentage of the statewide Medicaid Disproportionate Share Hospitals (DSH) allotment and the Safety Net Care Pool that were created in prior waiver agreements.

Hospital Quality Assurance Fee. To help cover safety net hospitals' Medi-Cal costs that are not reimbursed by the Medi-Cal program, California's hospitals developed a provider fee program called the Hospital Quality Assurance Fee (QAF). Under QAF, private hospitals self-assess fees on their operations and the resulting funds serve as non-federal shares when drawing on matching federal funds. As a result of a successful ballot initiative in 2016, the provider fee program became permanent. UC and other public hospitals receive a portion of the QAF funding through an agreement with California Hospital Association (CHA).

Other Sources

Clinical Teaching Support. State General Funds have been appropriated to the University in recognition of the need to maintain a sufficiently large and diverse patient population at the medical centers for teaching purposes. These funds, called Clinical Teaching Support (CTS), were historically used to provide financial support for patients who were essential for the teaching program because their cases were rare or complicated (providing good training experience), but who were unable to pay the full cost of their care. In response to budget cuts associated with the Great Recession, campuses were given (and still retain) the flexibility to reduce CTS funds to help address budget

shortfalls. The Irvine and Los Angeles campuses have continued a portion of the CTS funding previously provided.

County Funding Programs. California counties reimburse certain hospitals for selected indigent patients. Counties use local tax dollars from their general fund to subsidize this healthcare. Downturns in the state's economy affect local county revenues, creating increased competition among local services for reduced funds and constraining the ability of local governments to adequately fund healthcare services for the uninsured. Measures enacted to mitigate these impacts have not provided full relief.

CURRENT CHALLENGES AND ISSUES

UC's medical centers are subject to a wide variety of pressures that may affect their financial outlook over the next several years, including:

- Uncertainty about reimbursement rates for emerging treatment capabilities, such as chimeric antigen receptor T-cell therapy for some types of cancer, that are often very expensive.
- Ongoing federal efforts to reform the 340B Drug Pricing Program (which enables safety net hospitals to purchase drugs at a substantial discount from participating drug manufacturers) and to reduce Medicare reimbursement rates for drugs acquired under the 340B Program. Pressure from commercial payers and pharmacy benefit managers to reform the Medi-Cal program's pharmacy benefit may reduce the financial support available to UC Medical Centers through the 340B Program. Although the American Hospital Association won a favorable ruling from a federal district court stating that the Medicare reimbursement cut was unlawful, CMS has appealed that ruling. The outcome of the case, as well as the remedy, remains uncertain.
- Likely reductions in federal Medicaid disproportionate share hospital (DSH) payments that were scheduled to begin in 2014 under the Affordable Care Act but that have been repeatedly delayed by Congress. Legislative efforts to further delay these cuts have been stalled in Congress, increasing the likelihood that DSH payments will be cut by \$4 billion nationwide in federal fiscal year 2020 (starting October 1, 2019) and \$8 billion per year for fiscal years 2021 through 2025.
- Potential reductions to Medicare DSH payments resulting from a change in allocation methodology. This methodology distributes 75% of these payments based on a hospital's share of the total uncompensated care provided across the country (measured using uninsured patients). California's success in expanding coverage through Medi-Cal and Covered California, compared to

other states, may reduce Medicare DSH payments to hospitals in California.

- Changes to the federal Medicare program that affect direct and indirect support for Graduate Medical Education.
- Changes to federal and state Medi-Cal payments for patient care and graduate medical education, including aggregate caps on supplemental payments.
- Increased pressure to make healthcare services more affordable and link payments to the type and quality of service provided and the health outcomes achieved.
- Rising costs of pharmaceuticals and medical supplies.
- Increasing salary and health and welfare benefit costs.
- Increasing employer contributions to UCRP, which are becoming a growing proportion of medical centers' fixed costs, and without increasing efficiency, could result in negative operating margins.
- Financing seismic retrofit and other significant capital needs, such as upgrades necessary for programmatic changes.
- Increasing demand for services and capacity constraints.
- A shortage of key personnel, particularly laboratory and radiology technicians, resulting in increased use of contingent labor.
- Implementing community hospital preparedness activities, such as establishing procedures for responding to imminent epidemics.

Despite these economic issues, the UC medical centers must generate sufficient funds to meet their teaching mission and support their schools of medicine. The financial viability of the UC medical centers depends upon payment strategies that recognize the need to maintain an operating margin sufficient to cover debt, provide working capital, purchase state-of-the-art equipment, invest in infrastructure and program expansion, support medical education, and allow provision of care for the poor. Higher commercial insurance reimbursements help fill the funding gap created by shortfalls in lower Medi-Cal and Medicare reimbursements. The medical centers continue to expand access to care and fulfill their missions, but the current landscape and an uncertain future for the Affordable Care Act presents challenges.

LEVERAGING SCALE FOR VALUE

Recognizing the need to reduce costs and increase revenue, UC Health launched a Leveraging Scale for Value (LSfV) program in March 2014. Aligned with President Napolitano's push to identify cost savings and operational

efficiencies, projects in 2014-15 initially focused on areas of supply chain and revenue cycle. This project saved \$182.5 million in 2015-16, \$261 million in 2016-17, \$286 million in 2017-18, \$239 in 2018-19, and an estimated \$345 million in 2019-20 for a cumulative impact of more than \$1.3 billion over the 5-year life of the program. LSfV continues to demonstrate how system-wide efficiencies produce savings and quality improvement in the ever-changing landscape of health care. In recognition of UC Health's demonstration of excellence in balancing cost, quality, and outcomes, the system was awarded a Health Care Supply Chain Achievement Award from the ECRI Institute (formerly the "Emergency Care Research Institute") in 2017.

UC SELF-FUNDED PLANS

The University of California offers self-funded PPO and flex-funded HMO coverage options to its employees, retirees, and their dependents: UC Care, Core, Health Savings Plan and UC Blue & Gold HMO. Additionally, the University offers three Medicare supplement plans that are self-funded.

UC Care is a custom three-tier PPO plan. Tier 1 includes UC Health System providers from the five academic medical campuses as well as other providers in markets that do not have UC medical centers. Both Core and the Health Savings PPO plans are high deductible health plans. The Health Savings plan combines the flexibility of a PPO with the tax-saving benefits of a Health Savings Account (HSA). UC funds the Health Savings Account (HSA) up to \$1,000 for those employees with family coverage. UC Blue & Gold is an HMO with a custom network of providers created exclusively for UC that includes more than 240 hospitals, 10,000 PCPs and 26,000 specialists across 30 counties.

Over the long term, the oversight of self-funded plans will provide the University with the ability to more proactively manage healthcare costs and aim for better population health. Currently, all forms of self-funded plans have enrolled 187,580 UC employees, dependents, and retirees.

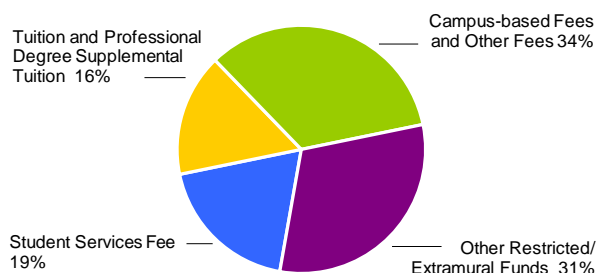
Student Services

Student services are secondary programs and activities that contribute to the intellectual, cultural, and social development of students outside of the University's primary three-prong mission of instruction, research and public service. These services can have a significant influence on students' academic outcomes and personal development, as well as help build bridges between what students learn in the classroom and how they apply their knowledge and skills on campus and in the broader community.

Student services are supported largely from non-State funds. Total expenditures for student services were \$1.2 billion in 2018-19 (see Display XII-1), most of which were generated from student fees. The University features a variety of student services programs. Elements of these programs are described below (also see Display VI-2).

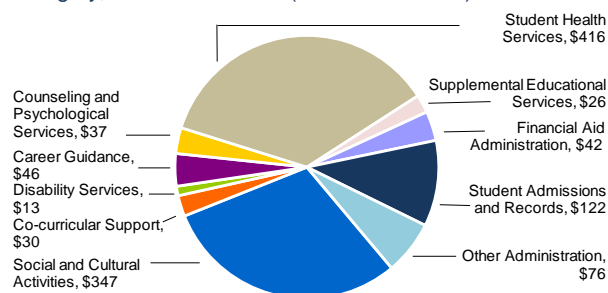
- **Campus admissions and registrar operations** include the processing of applications for admission, course registration, scheduling of courses, maintaining and updating student academic records, preparing of diplomas, and reporting of statistics.
- **Campus financial aid offices** counsel students about their financing options; determine and monitor the eligibility of students for financial assistance; and develop financial aid packages for students, which include scholarships, fellowships, grants, fee waivers/remissions, and loans and work-study jobs from federal, State, UC and private sources.
- **Counseling and psychological services** are available to all registered students. Campus services include emergency response, short-term counseling, outreach and prevention services, and faculty/staff consultation aimed at maintaining the emotional health and wellness of the campus community.
- **Student health services** provide primary care and other services to keep students healthy, including general outpatient medical care; specialty medical care; psychiatry; and health education, including wellness and stress reduction.
- **Academic support services** (supplemental educational services) offer individual and group tutorial services in writing, mathematics, and study skills, as well as preparation for graduate school exams.
- **Co-curricular support and engagement** includes, for example, services for student veterans, undocumented students, LGBTQ students, cross-cultural centers, leadership programs and student government.

Display XII-1: 2018-19 Student Services Expenditures by Fund Source (Total: \$1.2 Billion)



Student fee revenue, including campus-based fee revenue, provides 69% of the funding for student services. Total includes administrative activities.

Display XII-2: 2018-19 Student Services Expenditures by Category, Dollars in Millions (Total: \$1.2 Billion)



In 2018-19, 93% of student services expenditures were for non-administrative activities in counseling, cultural and social activities, and student health services.

- **Services to students with disabilities** include readers for the blind, interpreters for the deaf, note-takers, mobility assistance, adaptive educational equipment, disability-related counseling, and other services.
- **Social and cultural activities** provide opportunities for students to participate in student organizations, recreational and sport activities, and various forms of art (music, dance, painting, etc.).
- **Career guidance** activities assist students with academic performance, choice of major, graduate or professional school applications, internships, career opportunities and assessing interests and aptitudes. Student services programs, as with many University programs, persistently suffer from underfunding.

Student services programs, as with many University programs, persistently suffer from underfunding. Beginning in the early 1990s, student services were adversely

affected by severe budget cuts when the University was forced to make significant reductions due to the State's fiscal crisis. At that time, student services were State-funded and have since been shifted to non-State funds, primarily Tuition and the Student Services Fee. In 2002-03, student services programs were further reduced by a targeted mid-year cut of \$6.3 million, which grew to \$25.3 million in 2003-04 – equivalent to a 20% reduction in Student Services Fee funded programs.

These reductions occurred when student enrollment was increasing with corresponding growth in demand for student services, including during the summer.

Despite an increase in the Student Services Fee in 2011-12, student needs continued to evolve. More students were enrolling at UC and program costs continued to increase, making it more difficult to provide adequate services. The State's renewed investment in UC, announced by Governor Jerry Brown in the May Revision to the 2015-16 Budget, included a budget framework that initiated much needed predictability in its long-term fiscal outlook and a solid foundation from which to plan. The budget framework also acknowledged the need for additional revenue for student services.

Thus, the University implemented a plan in 2015-16 for increases of 5% annually to the Student Services Fee through 2019-20. Half of the revenue generated by the increase (net of aid) is designated for the hiring of direct mental health services providers with the other 50% for critical student services. In 2017-18, the Regents approved a 5% increase. For both 2018-19 and 2019-20 however, there was no permanent increase to the Student Services Fee with the fee remaining flat at the 2017-18 level.

STUDENT MENTAL HEALTH SERVICES

Issues concerning student mental health continue to see heightened national attention, with colleges and universities reporting increasing numbers of students in psychological distress. The University of California has not been immune to this trend. A comprehensive systemwide review of student mental health issues and the challenges associated with providing these necessary services were presented to the Regents in September 2006. The following was noted:

- Consistent with national trends, UC students are presenting mental health issues (e.g., suicidal thoughts, depression, stress, and anxiety) with greater frequency and complexity (e.g., prescribed psychotropic medications in combination with psychological counseling).
- Budget constraints limit campus capacity (e.g., increasing psychological counseling staff) to respond to mental health issues and result in longer student wait times, difficulty retaining staff, and decreased services and programs.
- Increasing demand and declining capacity pose a threat to the learning environment because of the significant adverse impacts on faculty, staff, and fellow students when students are inadequately cared for through the existing mental health system.

Recommendations in the final 2006 Student Mental Health report were organized within a three-tier model: Critical Mental Health Services, Targeted Interventions for Vulnerable Groups, and Creating Healthier Learning Environments. The model was created to provide a framework for meeting the fundamental mental health needs of students and for providing safe and healthy campus environments across the system. The recommendations include:

- Tier I: restoring critical mental health services to fully respond to students who have demonstrated at-risk behavior and to reduce wait times;
- Tier II: implementing and augmenting targeted interventions through education, support, and prevention programs, and restoring staffing levels in those units best poised to assist high risk students of concern, as well as students from vulnerable populations; and
- Tier III: taking a comprehensive approach to creating healthier learning environments by enhancing the full spectrum of student life services and by revising administrative policies and academic practices in order to promote communication and collaboration.

In response to the urgent priority to enhance mental health services, in 2007-08 and 2008-09, the University dedicated \$12 million (28% of the recommended \$43 million) in funding from Student Services Fee increases for this purpose over a two-year period. Much of the funding from the increase in 2007-08 has supported critical mental health and crisis response services, such as increasing counseling center staffing to meet the high demand for counseling intervention. Revenue from the 2008-09 Student Services Fee increase has been used to develop programs that

target vulnerable groups (e.g., foster youth and veterans); expand outreach; provide mental health internships for students, staff, and faculty; and develop interventions for students at high risk for alcohol and drug abuse.

Substantial progress was made in expanding mental health services. However, in 2009-10, a student mental health survey was administered to determine the impact of the Student Services Fee augmentations. Findings indicated that while the wait period to see a mental health professional had decreased, campuses were continuing to see increased severity of student issues and greater demand for mental health services.

In response, the campus Student Affairs divisions and the Office of the President Student Affairs department collaborated on a successful bid for a \$6.9 million student mental health grant funded by the California Mental Health Services Authority (CalMHSA) through Proposition 63. In 2011, each campus received \$500,000, with the remaining money set aside for systemwide initiatives such as training and forums, programming, the development and maintenance of a systemwide mental health website, and grant management. Funds were used to enhance existing mental health services and create new prevention and early intervention programming. Programmatic efforts include:

- training for students, faculty, staff, and graduate teaching/research assistants on how to recognize and respond to students in distress;
- development of a comprehensive, systemwide approach to suicide prevention;
- creation of a social marketing campaign to reduce stigma and discrimination of those living with a mental illness;
- development of an online resource clearinghouse to facilitate collaboration with other mental health stakeholders across California;
- the launch of an anonymous online interactive suicide prevention screening tool;
- enhanced training materials, including the development and strengthening of crisis response protocols for all faculty and staff;
- production of systemwide public service announcements and training videos to support the social media campaign; and
- the development of a full text handbook for faculty and staff detailing in-depth information about mental health and the role of faculty and staff in supporting students of concern.

In 2012, UC applied for additional CalMHSA funding, and in January 2013 was awarded \$877,224. Of this total, \$127,224 was retained by the Office of the President for system-level programming consistent with campus mental health staff priorities, and the remaining \$750,000 was distributed to the campuses. This funding provided UC with an opportunity to further expand its response to Tiers II and III of the student mental health recommendations.

In 2014, CalMHSA awarded UC an additional \$250,000 to support a systemwide best practice conference and sustain campus awareness campaigns and suicide prevention screenings through December 2015. State-level legislation that would have brought additional mental health funding to UC through Proposition 63 was vetoed by Governor Jerry Brown in 2016 and again in early 2017. No additional funding is anticipated from CalMHSA at this time.

Student mental health issues remain a serious concern at the University as demand and severity continue to increase, often outpacing the national trends. Enrollment growth, increased demand for mental health services, and escalation of cost require a plan that will adequately fund student mental health.

On August 2019, UC Health presented to the Regents a 5-year cost estimate to support student mental health. The 2020-25 estimate outlined the support needed: \$55 million to fund clinical providers; and \$121 million to fund campus prevention, early intervention, and the development of healthy campus learning environments. The total 5-year cost estimated funding need for student mental health is \$176 million. This translates to an annual request of \$35.2 million through 2025.

In the 2019-20 fiscal year, \$5.3 million in funding for student mental health was included in the State budget. This appropriation will allow UC to retain current levels of mental health staffing, but will preclude UC from reaching desired staffing levels and keeping staffing levels in line with enrollment growth

Counseling appointment access for urgent mental health issues remains relatively high at all campuses, with most students seen on a same-day basis, 96% of students seen within two days, and 99% of students seen within seven days. Access to initial intake appointments for routine

issues remains good, though the percentage of students seen within two weeks has gradually declined from 80% in fall 2016, to 78% in fall 2017, to 74% in the fall 2018.

Factors contributing to this decline include steadily increasing enrollment growth, counseling position recruitment difficulties, and most recently, the interruption of anticipated additional long-term funding for direct service mental health providers in fiscal year 2018-19. Counseling services have seen a 3.5% increase in individual counseling visits, a 0.5% increase in unique individual counseling patients, and a one-day increase in average wait time to initial intake appointment for routine issues (ten days). There is currently no change in the average wait time for Urgent Appointments (zero days), First Follow-up Appointments (16 days), or First Contact Appointments (five days).

Psychiatry services have seen an 8% increase in individual psychiatry visits, and a 7% increase in unique individual psychiatry patients. There is currently no change in the average wait time for initial routine psychiatry intake appointments (11 days), and there is a one-day reduction in the average wait time for First Follow-up Appointments (23 days). There has been a four day increase, however, in the average wait time for First Contact Appointments (nine days).

UC continues to work to reduce wait times, with the aspiration of seeing all students within 14 calendar days. Other approaches to mitigating demand include addressing the prevention and early interventions strategies outlined in Tiers II and III of the comprehensive service model. Given the increase was earmarked specifically for staffing, additional funds are still needed to address those areas.

UC STUDENT HEALTH INSURANCE PLAN

In order to ensure that UC students have access to high-quality healthcare services, the University requires all students to have a minimum level of health insurance coverage. Students can meet this requirement either by enrolling in a UC-sponsored insurance plan or by demonstrating adequate coverage through a plan of their own.

The largest UC-sponsored plan is the UC Student Health Insurance Program (UC SHIP), a self-funded PPO plan first established in 2011. This program incorporates a shared governance structure whereby all key decisions are voted on in the Executive Oversight Board forum, which meets monthly and is comprised of leaders from campus student health services, student representatives, and UCOP executive leadership.

UC students at Davis, Hastings College of the Law, Irvine, Los Angeles, Merced, Riverside, San Diego, San Francisco, Santa Barbara and Santa Cruz campuses were automatically enrolled in UC SHIP for the 2019-20 academic year. Students already covered by a health insurance plan can waive enrollment to UC SHIP by submitting a waiver application prior to the start of each new academic year. UC SHIP offers medical, pharmacy, dental and vision care benefits, and mental health and substance use disorder services for our undergraduate and graduate students and their dependents. Berkeley provides medical, dental, and vision benefits administered at the campus level and is not part of UC SHIP. By leveraging the purchasing power of students across multiple campuses, the University can provide students with access to excellent coverage at affordable prices.

UC SHIP provides benefits that match or exceed those required by the Affordable Care Act (ACA) even though, as a self-funded student health plan, it is not required to do so. University sponsorship of student health insurance plans remains relevant in this era of health care reform. Most students can obtain stronger benefits at a lower cost with a UC-sponsored student health plan than if they purchase an individual plan through the State insurance exchange. In 2015, UC SHIP applied to be a Minimum Essential Coverage (MEC) plan (as required by the Affordable Care Act), so that students can avoid paying a fee for not having insurance. The University's medical centers treat all patients who require services without regard to race, color, religion, national origin, citizenship or other protected characteristics.

PRESIDENTIAL PROGRAMS

President Napolitano continues her commitment to addressing critical student challenges and needs. Several student-focused projects are described below.

Undocumented Students. In 2013, President Napolitano allocated \$5 million for financial aid and student support services for undocumented UC students. The funding for the initiative came primarily from excess reserves in the Mortgage Origination Program (MOP) and was distributed across all campuses. As a result, campuses have designated primary contacts for undocumented student services at each campus and focused on providing a range of support services that can help undocumented students balance being full-time students with other day-to-day challenges. The President also formed the President's Advisory Council on the Undocumented Community and Immigration to advise her on future challenges and solutions and established a pilot legal center at UC Davis to help students navigate immigration issues. In May 2015, UC hosted a National Summit on Undocumented Students from which a number of recommendations and strategies emerged for better serving undocumented students at UC.

In spring 2016, President Napolitano announced an additional three-year commitment of \$25.2 million to support the University's efforts to assist undocumented students. The funding supports UC's DREAM Loan Program; student services; staff coordinators; and UC's Immigrant Legal Services Center. After the 2016 United States presidential election, responding to concerns of possible changes to federal policy that would affect undocumented students, the University issued its Statement of Principles in Support of Undocumented Members of the UC Community reaffirming its commitment to vigorously protect the privacy and civil rights of undocumented members of the UC community.

On September 5, 2017, the administration announced it would rescind the DACA program by March 5, 2018, a six-month period. Following the announcement, the University filed a lawsuit against the current administration for violating administrative procedures and constitutional due process requirements by abruptly ending the DACA program, which President Napolitano helped to establish in

2012 while she served as Secretary of the Department of Homeland Security. President Napolitano called on Congressional leaders to immediately pass bipartisan legislation that would provide a permanent solution. President Napolitano also reaffirmed UC's unwavering support for all undocumented students and staff and expressed her commitment to ensuring that the University continues to be a welcoming and supportive place for students, faculty, and staff from all backgrounds. President Napolitano pledged that UC will continue to provide a broad range of support and legal services for undocumented students and will remain steadfast in upholding the Principles issued in 2016.

The Principles state, in part, that campus police officers will not contact, detain, question or arrest an individual solely on the basis of suspected undocumented immigration status or to discover the immigration status of an individual, except as required by law. The Principles also clarify that the University will not release immigration status or related information from confidential student records, without permission from a student, to federal agencies or other parties without a judicial warrant, a subpoena, a court order, or as otherwise required by law. President Napolitano directed the advisory committee on undocumented students to determine additional necessary measures to best support and protect current and future UC students who rely on DACA.

In 2018, more than 117,000 young immigrants extended their authorization to legally live and work in the United States under the DACA program, which is a direct result of a federal injunction that forced the Department of Homeland Security to continue to process DACA renewal applications. Also in 2018, the President's Advisory Council hosted a day-long working meeting in the spring aimed at developing strategies to financially support undocumented students and prepare them for post-graduation career opportunities. The recommendations that emerged from the convening focused on three areas: 1) support for undocumented students to earn a living; 2) provision of career services; and 3) fundraising to support and strengthen undocumented student services. As a result of that meeting, the University is currently collaborating with the organization **Immigrants Rising**, and organization that

helps undocumented students reach their educational and career goals, to produce training focused on income generation for immigrants regardless of legal status. That training will be delivered to campus financial aid and career centers in fall 2019.

In 2018-19, the University's budget earmarked \$4 million to support legal services for undocumented and immigrant students, faculty, and staff. These funds will allow the University to expand the legal resources it currently provides to this population.

Military-Affiliated Students. On May 2, 2014, the UC Office of the President in coordination with UC Riverside hosted a systemwide meeting on student veterans with campus Veterans Services Coordinators and UC student veterans. Using a "Red, White, and Blue," format proposed by the students, discussion groups focused on identifying emerging issues and challenges in the following three areas: Red (outreach to veterans interested in attending UC); White (campus services for current UC student veterans); and Blue (transition support to career/graduate school for current UC student veterans). An outcome of this meeting was the establishment of the President's Advisory Council on Student Veterans, which was convened in August 2014, to advise the President on how best to address the particular challenges experienced by military-affiliated students.

Current military-affiliated educational support programs and services include admissions outreach; priority course registration; affordable housing; academic support; career development; graduate school support; and staff training. An outcome of the Advisory Council, a systemwide military-affiliated resource website was launched in September 2015. The site provides military-affiliated students with information on admissions, residency, educational benefits via the post-9/11 G.I. Bill, and campus mental health and counseling resources. In addition to the website, every campus has a designated military-affiliated services coordinator to help connect students with supporters and advocates in health services, career centers, academic advisors, student mentors, and military-affiliated student groups across campus. In 2016, a systemwide UC Veterans Career Success Forum was held. The Forum focused on supporting military-affiliated students' transition

to careers and/or graduate school through a series of skill-building activities and presentations from California employers, UC military-affiliated alumni, UC graduate and professional school representatives, and UC Career Center staff.

Lesbian, Gay, Bisexual and Transgender (LGBT) Students, Faculty, and Staff. In 2014, the LGBT Advisory Council worked with President Napolitano to help identify and address specific student needs and strategies, as well as help create a more welcoming and inclusive environment for LGBTQ students, faculty, and staff. With the Advisory Council's support, the University has added sexual orientation and gender identity questions to undergraduate and graduate admissions applications, allowing students to indicate a preferred name that appears on certain campus records. In June 2015, the University also issued guidelines for implementing gender inclusive facilities in University-owned buildings and facilities that are either new or undergoing major renovations, including restrooms and changing rooms.

Since the conclusion of the Advisory Council in spring 2014, Student Affairs has been partnering with the LGBTQIA+ Directors Council, whose membership is comprised of the LGBT resource center directors on each campus, to continue addressing the needs of sexual and gender variant student populations. Specifically, the council is providing feedback on efforts to incorporate gender identity content into online sexual harassment prevention trainings for students, faculty, and staff. In addition, the council is working on plans to enable students to reflect a lived name on diplomas; allow UC alumni to retroactively adjust their diplomas so they display the person's lived name; and provide ongoing input on the University's efforts to update systems and policies in order to comply with California's Gender Recognition Act.

Sexual Violence and Sexual Harassment. A Task Force was formed in July 2014 with the goal of UC becoming the national model in preventing and combating sexual violence and sexual assault. This was to be achieved through the completion of two phases, as described below.

- Phase I: Identify steps to improve the University's current processes that will make a difference in

effecting cultural change in sexual violence and assault prevention.

- Phase II: Develop recommendations for implementing strategies to support excellence in prevention, response, and reporting of sexual violence, harassment, and sexual assault based on evidence-informed solutions and approaches.

In September 2014, the Task Force presented Phase I, which introduced a national model for campuses to address the issues of sexual violence and sexual assault based on five key functions: Prevention, Education, Advocacy, Response and Reporting (PEAR). The Task Force also made the following seven recommendations:

- Establish a consistent “response team” model at all campuses.
- Adopt systemwide, standard investigation and adjudication standards.
- Develop a comprehensive training and education plan.
- Implement comprehensive communication strategy to educate the community and raise awareness about UC programs.
- Establish an independent, confidential advocacy office for sexual violence and sexual assault on each campus.
- Establish a comprehensive systemwide website with campus customization capabilities.
- Initiate/develop a systemwide standard data collection system.

In July 2015, the Task Force presented Phase II and outlined how UC has successfully implemented recommendations aimed at improving services and response to sexual violence, and ensuring consistency across the system. These include:

- establishing a “CARE: Advocate Office for Sexual and Gender-Based Violence and Sexual Misconduct” at every campus;
- implementing a standardized two-team response model at all UC campuses for addressing sexual violence; and
- launching a new systemwide website designed to serve as a user-friendly, one-stop portal for quick access to campus resources and important information.

At the September 2015 Regents meeting, the Task Force provided an update on Phase II, primarily on the training efforts that have been implemented to address the

recommendation to develop a comprehensive training and education plan for students, staff, and faculty. The presentation consisted of an overview of the training efforts for undergraduate and graduate student education and awareness related to sexual assault and sexual violence.

In January 2017, President Napolitano appointed UC’s first Systemwide Title IX Director to oversee the University’s work to effectively address sexual violence and sexual harassment. These efforts include improving UC’s policies and procedures, developing effective education and prevention programs, ensuring fair and efficient investigation and adjudication processes, and ultimately changing the culture to create a safe and respectful learning environment for all students.

In 2018, the Systemwide Title IX Office and Student Affairs established a 19-member Student Advisory Board, including one undergraduate and one graduate student from each campus. The Student Advisory Board is tasked with providing input to the University on issues related to sexual harassment, which includes sexual violence. Members advise the Systemwide Title IX Office on its ongoing prevention and response efforts. They also assist in identifying emerging issues related to sexual harassment and sexual violence and contribute to the policy review process.

In November 2018 U.S. Secretary of Education, Betsy DeVos, published proposed regulations that would dictate how the University responds to sexual harassment. UC has substantial concerns about some aspects of the proposed rules and has taken a strong, public stance against them. President Napolitano and the Systemwide Title IX Director memorialized UC’s concerns in a letter submitted to the Department of Education in January 2019.

On July 31, 2019, the University issued a revised systemwide Sexual Violence and Sexual Harassment (SVSH) Policy. The revised policy addresses critical concerns identified through an extensive review process that included input from students, faculty, and staff from across the system. The policy also includes changes required by the U.S. Department of Education’s Office for Civil Rights in its February 2018 resolution agreement with

UC Berkeley, and, additions recommended by the California State Auditor in its June 2018 report.

On the same date, the University also issued a revised SVSH Student Investigation and Adjudication Framework. This policy details the systemwide procedures for investigating, adjudicating, and imposing sanctions in sexual violence and sexual harassment cases involving student respondents. It was revised primarily in response to a January 2019 California appellate court ruling that colleges and universities in the state must hold live hearings to resolve certain sexual misconduct cases. Because the University had been resolving cases using an investigative model rather than a hearing model, it had to immediately revise the framework to comply with the ruling. This change resulted in an interim version of the framework issued on March 1, 2019.

While the interim framework was in place, a working group formed by the Systemwide Title IX Office and Student Affairs carefully considered what a hearing model that makes sense for UC should include. That working group included representatives of stakeholder groups across the system. The revised version of Appendix E issued on July 31, 2019 reflects the careful work of that working group, input of key stakeholders from across the system and feedback from the broader UC community. The revised policies reflect the University's continuing strategy to effectively prevent and respond to sexual harassment, including sexual violence.

President Napolitano is strongly resolved to protect students and employees from sexual harassment and violence. The University is committed to fostering a culture of safety and respect for students and employees, while ensuring a fair and consistent process for responding to reports of sexual harassment.

FUTURE NEEDS

The University has identified a number of critical needs for additional student services funding. These include:

- Academic support programs such as tutoring in writing, mathematics, and study skills, as well as preparation for graduate and professional school exams.
- Support for students with disabilities. The strain on student services budgets has been exacerbated over time by the increasing demand for services to students with disabilities, many of which are very expensive and cause limited student services funds to be spread even more thinly. There continues to be an increase in demand for interpreting and/or real-time captioning services (and costs have increased for interpreters), as well as services for those suffering from repetitive stress injuries who require multiple forms of auxiliary services and assistive technology.
- Major student information systems (e.g., student information services; web-based services; and registration, admissions, student billing, financial aid, and accounting services) to meet the current and future needs of students and student service organizations.

Institutional Support

Institutional support services provide the administrative infrastructure for the University's operations. Grouped into five broad categories, institutional support activities include:

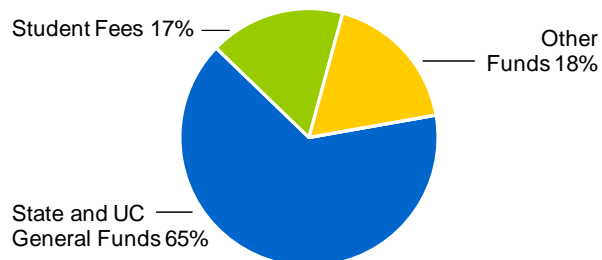
- **Executive Management** — Offices of the President, Vice Presidents, Chancellors, Vice Chancellors, Regents' Officers, the Academic Senate, and Planning and Budget
- **Fiscal Operations** — accounting, audit, contract and grant administration, and insurance management
- **General Administrative Services** — information technology, human resources, and environmental health and safety
- **Logistical Services** — purchasing, mail distribution, police, construction management, and transportation services
- **Community Relations** — alumni and government relations, development, and publications

The University faces a growing body of unfunded mandates affecting institutional support, including new accounting standards, growing accountability requirements, and increased compliance reporting in areas ranging from environmental health and safety to fair employment practices and compensation issues. To address these unfunded mandates, the University has absorbed increased costs of developing new data collection processes, changing existing information and reporting systems, and growing its analytical staff.

Despite these added expenses, institutional support expenditures as a proportion of total University expenditures have steadily decreased over the last 30 years (see Display XIII-3). Institutional support budgets are often one of the first areas of the budget to be reduced in difficult economic times. In response to budget cuts, UC administrative units have implemented new processes, improved use of technology, and consolidated operations to increase productivity in order to meet increasing workload demands under constrained budget situations.

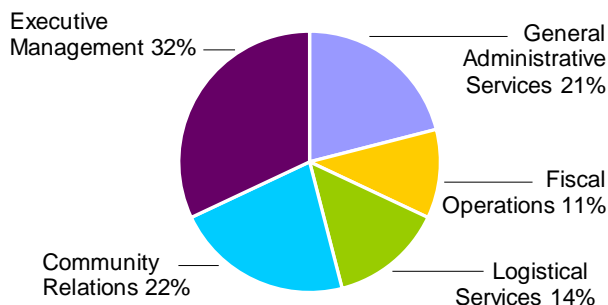
Since the early 1990s, as each recession has occurred, legislative intent language and the shared desire of the University and the State to protect core academic programs has meant that institutional support has often been targeted for additional cuts over the years. Examples include the following:

Display XIII-1: 2018-19 Institutional Support Expenditures by Fund Source



Core funds provide 82% of institutional support funding. Significant other sources include private funds, endowment earnings, and indirect cost recovery for contract and grant administration.

Display XIII-2: 2018-19 Institutional Support Expenditures by Category



Logistical services, fiscal operations, and general administrative services comprise nearly half of institutional support expenditures.

- Between 1995-96 and 1998-99, budget reductions totaled \$40 million, consistent with productivity improvements mandated under a four-year Compact with then-Governor Pete Wilson.
- In 2003-04 and 2004-05, institutional support and academic support budgets were reduced by a total of \$81.9 million.
- For 2008-09, the State directed that \$32.3 million be reduced from institutional support.

Reduced funding for institutional support limits essential investment in UC's technology infrastructure and constrains fundraising and development activities at a time when such activities are more critical than ever to sustain the institution.

THE OFFICE OF THE PRESIDENT AND UNIVERSITYWIDE ACADEMIC PROGRAMS

The 2019-20 UCOP budget is \$942 million. Funds will be used to support the functions described below.

Central and administrative services. These services support critical systemwide services to campuses and UCOP internal operations. These services include:

- Governance and administrative services, as performed by officers reporting directly to the Board of the Regents, the Academic Senate, and the immediate offices of senior administrative leadership
- Central service functions, such as systemwide budget management, external relations, management of the retirement and benefit systems, banking services, cash management, corporate accounting, risk services, and strategic sourcing
- Academic programs, including central administration of a single digital library system

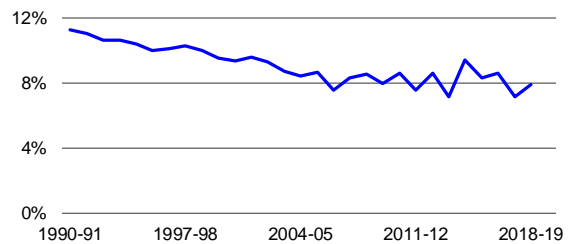
Systemwide programs. These programs are administered at and/or funded from the center to the benefit of the UC system. They include the UCPress, Laboratory Fees Research Program, UC Observatories, public service programs, Agriculture and Natural Resources, Tobacco-Related Disease Research, and the UC Center for Health Quality and Innovation.

The UCPath Center, which is a centralized payroll system that is a separate line item in the budget to better show its growth trajectory as more campuses come online.

The Strategic Priorities Fund. This fund supports short-term programmatic needs, administrative projects, emergent or urgent priorities, and Presidential Initiatives.

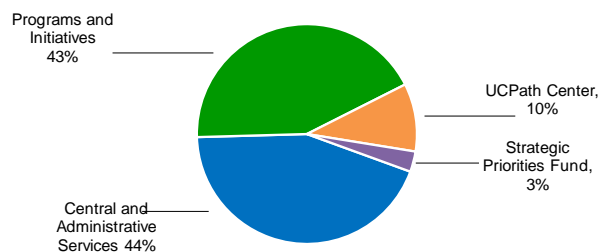
As shown in Display XIII-4, 43% of the UCOP budget supports Programs and Initiatives. The total central budget represents about 2.4% of the overall University of California budget. For 2018-19, 37% of the UCOP budget are funds that pass through UCOP to campuses, California researchers, and the public. UCOP coordinates activities that allow a complex and unique system to operate efficiently as one university, furthering its instruction, research, and public service missions. This structure reduces redundancy across the system and helps strategically position the campuses to excel.

Display XIII-3: Institutional Support as a Percentage of University Spending



Spending on institutional support as a percentage of total UC expenditures has dropped from over 11% in 1990-91 to about 7.9% in 2018-19.

Display XIII-4: 2019-20 UCOP Budget by Category



The total UCOP budget for 2019-20 is \$942 million.

ADMINISTRATIVE EFFICIENCIES

The University is committed to achieving a level of administrative excellence equivalent to that of its teaching and research enterprises. To that end, the University has coordinated a number of systemwide efforts to leverage its size and scale to achieve operational efficiencies.

Examples include:

- **Connexus Travel**, a centrally managed travel program offering online and agent-based reservation options and discounts to UC and CSU travelers. To increase utilization, the Connexus team recently redesigned the web portal to strengthen the user experience at all UC locations.
- **P200: Strategic Procurement**, a Universitywide program by Procurement Services staff at UCOP who negotiate vendor contracts to leverage UC's substantial combined buying power. Through the development and implementation of strategic procurement processes and state-of-the-art technology, P200 optimized the value of funds expended on the acquisition of goods and services. The program has also generated revenue for the campuses, consisting of early pay discounts, e-commerce incentives, and other negotiated efficiency incentives.

- Fiat Lux Risk and Insurance Company (Fiat Lux)**, a wholly-owned, single-parent, not-for-profit captive insurance company established by the UC Regents in 2012. As an incorporated and licensed insurance company, Fiat Lux provides the University a unique mechanism with which to finance UC's systemwide risks. It also allows UC to capture underwriting profits and corresponding investment income that would normally be retained by traditional insurance companies. Fiat Lux now purchases a majority of the insurance to cover the University's risks systemwide. Whereas in the past, UC purchased this insurance on a retail basis through brokers, Fiat Lux purchases reinsurance directly from the markets (on a wholesale basis), increasing UC's capacity and reducing its expense.

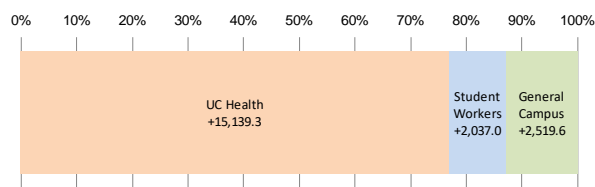
EMPLOYEE TRENDS AT UC

The growth in academic versus non-academic personnel is a topic that reemerges periodically, particularly during times of budgetary shortfalls and during salary negotiations for specific employee groups. The most recent budget crisis rekindled concerns about growth in administration and how it compares to growth in student enrollments and faculty. Although there has been growth in staffing at the University as a whole, it has been due largely to a growing population of students on our campuses and patients in our medical centers. Administrative staff levels have grown very little overall and have actually declined in programs that are supported from core funds.

An analysis of employee trends between October 2008 and October 2018 helps identify where personnel growth has occurred.

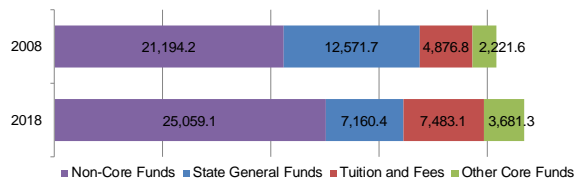
- The majority of staff growth (77% of the increase) is UC Health staff, which parallels increases in medical center revenue and expansion of services. UC Health staff are primarily supported by non-core funds (97%), with the remainder in health science academic programs.
- General campus student workers account for 10% of the increase, which is largely due to the enrollment growth of nearly 60,000 over this period. This enrollment growth combined with an expansion of work-study financial aid programs have a large impact on the increase in student workers.
- The remaining growth occurred in general campus staff. Although enrollment increased by 27% between 2008 and 2018, general campus staff grew only 6% amidst increasing enrollment and expansion of self-supporting

Display XIII-5: UC Staff FTE, October 2008 and 2018



Although enrollment increased by 2.4% annually, general campus staff has only increased by 0.6% annually.

Display XIII-6: General Campus, Non-Student FTE by Fund



auxiliary enterprises. General campus non-student staff supported by State General Funds has declined by 5,411 FTE even though overall FTE increased by 2,520. Meanwhile staff supported by non-core funds grew by 3,865 FTE. See Displays XIII-5 and XIII-6 for details.

- Over this same period, Senior Management Group (SMG) staff has decreased annually by 1.8%. Managers and Senior Professionals (MSP) staff increased by 4.0% annually with 86% of the growth coming from Technical/Senior Professional staff. This growth is a reflection of the professionalization of UC's workforce which mirrors changes seen in the wider labor market over the last several years.

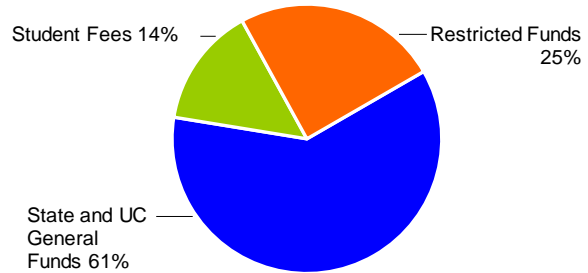
Operation and Maintenance of Plant

An essential activity in support of the University's core mission of instruction, research, and public service is the operation and maintenance of facilities, grounds, and infrastructure, collectively known as operation and maintenance of plant (OMP). UC maintains and/or occupies nearly 141 million gross square feet of space in over 6,000 buildings, 1,997 of which are buildings that are at least 10,000 square feet. These buildings, spread across the ten campuses, five medical centers, and nine agricultural research and extension centers, include classrooms, laboratories, animal housing facilities, libraries, and specialized research facilities. Historically, the State funded space according to use; space used for classrooms, laboratories, offices, and some research and support uses have been eligible for State support. Just over 68.2 million square feet (approximately 48%) are eligible to be maintained with State funds. The remaining square feet house self-supporting activities, such as medical centers and auxiliary enterprises, OMP costs for which must be included in their budgets. OMP expenditures for State-eligible space totaled \$739 million in 2018-19.

Operation and maintenance of plant funding typically falls into four basic categories: *facilities operations*, including facilities management, grounds maintenance, janitorial services, utilities operations, and purchased utilities; *facilities maintenance*, which includes preventive and repair activities necessary to realize the originally anticipated life of a fixed asset, including buildings, fixed equipment, and infrastructure; *capital renewal*, the systematic replacement of building systems and campus infrastructure to extend useful life; and *deferred maintenance*, the unaddressed backlog of renewal resulting from chronic underfunding of ongoing OMP support and the lack of regular and predictable investment in capital renewal.

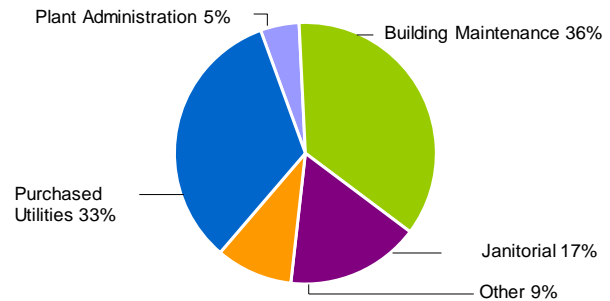
Between 2007-08 and 2011-12, the University was compelled to cut funding for the operation and maintenance of facilities to help protect core academic programs. While some of this reduction was mitigated due to increased efficiency – which is good for the fiscal health of the University – much of the reduction resulted from negative

Display XIV-1: 2018-19 OMP Expenditures by Fund Source (Total: \$739 Million)



The bulk of OMP expenditures is supported by core funds (State funds, UC General Funds, and student Tuition and fees).

Display XIV-2: 2018-19 OMP Expenditures by Category (Total: \$739 Million)



Purchased utilities for UC facilities account for approximately one-third of OMP expenditures. Building maintenance accounts for about another third.

austerity measures, such as cuts in building maintenance activities, scaled-back or eliminated preventive maintenance programs, and reduced custodial and grounds maintenance services.

The University requires stable, ongoing renewal funding to address the current deferred maintenance backlog and the extensive needs across its growing building and infrastructure portfolio. Chronic underfunding of basic maintenance shortens the useful life of building systems, exacerbating the maintenance needs of the University's vast inventory of aging facilities. Over 57% of the University's State-eligible space is more than 30 years old, as Display XIV-3 shows. These aging facilities are more expensive to maintain, and, with the building systems at or beyond their useful life, are a principal driver of the

University's escalating capital renewal needs. Moreover, specialized research facilities comprise a growing percentage of the University's inventory of State-eligible space. These facilities strain limited OMP funds with higher maintenance and utility costs.

BUILDINGS AND GROUNDS MAINTENANCE

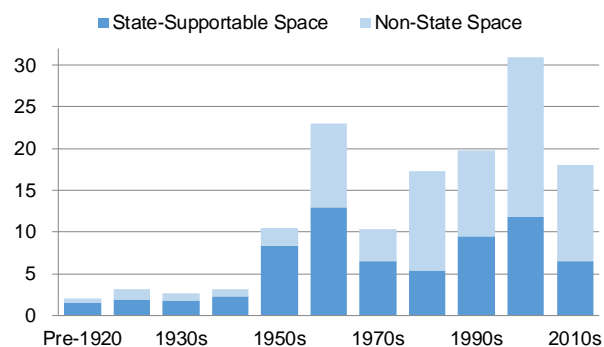
Funding for operation and maintenance of new space is an essential annual budget need; however, OMP is often one of the first areas to be cut in times of fiscal uncertainty and one of the last to be restored when times improve. Funding for OMP has not been stable or predictable since the mid-1990s, when the State provided \$8 to \$25 million annually. The history of State funding for UC is discussed in more detail in the *Historical Perspective* chapter of this document.

Starting in the mid-1990s, the State acknowledged the need to provide funding through various strategies in recognition of more than two decades of chronic underfunding of the University's OMP needs. Funding agreements with three former Governors (Wilson in 1996-99, Davis in 1999-2003, and Schwarzenegger in 2003-11) attempted to tie OMP funding to annual base budget adjustments; however, ensuing fiscal crises prevented most of the augmentations from occurring. Similarly, OMP funding was eventually included in the renegotiated marginal cost of instruction formula (described in more detail in the *General Campus Instruction* chapter) in 2006-07, but the State has not regularly provided full marginal cost funding since 2007-08.

To help fill these shortfalls in OMP, the University has on several occasions been forced to redirect its own resources to address its most serious OMP needs. With no State funding for OMP in 2008-09 due to the State's fiscal crisis, UC redirected \$9.7 million of permanent savings from restructuring at the Office of the President, and redirected one-time savings from debt restructuring to provide \$11.2 million in 2009-10 and \$19.5 million in 2010-11 to cover maintenance of new space.

The University is now operating about four million square feet of core program space that is eligible for State support but never funded by the State, representing approximately \$40 million of support that the State is not providing.

Display XIV-3: All Space by Decade of Construction (Gross Square Feet in Millions)



The University's physical plant expanded rapidly in the 1950s and 1960s and again in the late 1990s and 2000s.

CAPITAL RENEWAL AND DEFERRED MAINTENANCE

In addition to requiring funding for new space and building and grounds maintenance, the University faces growing costs to renew its existing buildings and to support infrastructure. This annual investment is needed for the normal replacement and renewal of building systems and components. Replacement and renewal cycles may occur several times during the life of a building.

Over the next decade, many of the heating, ventilation, and air conditioning (HVAC), elevator and conveying, plumbing, and electrical systems in UC's buildings will reach the end of their useful life. As a result, the University's annual capital renewal needs are projected to increase. Campus infrastructure, including utility generation and distribution systems, roads, bridges, hardscape, and seawater systems, also requires substantial ongoing investment in renewal. Regular funding for the systematic replacement of building systems and campus infrastructure is currently not included in either the University's operating or capital budgets, though such funding is proposed in the University's ten-year capital financial plan.

The estimates of funding needs for capital renewal and deferred maintenance in this chapter are based on the Facilities Infrastructure Renewal Model (FIRM) developed by the University in 1998, which includes an inventory of all State-supportable facilities at each campus, detailing infrastructure and buildings systems that need to be renewed on a predictable basis between 15 and 50 years,

such as roofs, fire alarm systems, heating and ventilation systems, central plant chillers, and underground utility cabling. The model assumes standard life cycles and costs for renewing each system, and from these elements develops a profile for each building and infrastructure system, projecting the renewal date and cost over a 50-year period. The model also estimates the backlog of deferred renewal by tracking those systems that have deteriorated to the point that they need major repair, replacement, or renewal to stop deterioration and reverse increases in maintenance costs required to keep the systems operating.

In the long term, failure to invest adequately in capital renewal and ongoing maintenance presents growing risks to the University, ranging from disruptions of programs that may be caused by a breakdown of a building's mechanical system or a facility's underperformance, to the impact of a catastrophic failure of a mission-critical system, or utility distribution system that could shut down an entire campus. The growing risk of catastrophic failure was highlighted by the rupture of a city water distribution line on the Los Angeles campus in 2015 and a power failure at the Berkeley campus in 2013 that forced the closure of a third of the campus facilities.

Given the age and current condition of University facilities and infrastructure, there is a critical need at the campus and system levels to make sound, data-driven capital renewal decisions based upon accurate information that identifies, prioritizes, and quantifies renewal and deferred maintenance needs and their associated risk.

The current FIRM only includes State-supportable buildings, only captures limited life cycle data, and only provides a high level inventory of infrastructure assets. Based on FIRM and other modeling efforts, the University currently estimates that its total deferred maintenance backlog cost reaches into the billions for State and non-State eligible space.

However, in order to support sound capital renewal and deferred maintenance decisions, the University must establish a process and system that can identify, quantify, estimate, prioritize, and track capital renewal and deferred maintenance needs. To this end the University is

implementing a new comprehensive Integrated Capital Asset Management Program (ICAMP) that will fully replace the current FIRM program.

ICAMP will allow the University to better understand the consequences of its decisions and thus reduce risk. ICAMP will perform initial real-time condition assessments on all University-related buildings as well as more detailed tracking of infrastructure assets. The ICAMP process will identify and estimate facility-related condition-based deferred maintenance, reporting by using industry standard asset classification specifications and construction project cost estimation data. All information will be maintained in the ICAMP program's state-of-the-art software, which provides consistent and reliable information. The process includes a detailed inventory of all major building and infrastructure systems and components as well as an overall assessment of each.

PURCHASED ENERGY UTILITIES

Since the energy crisis of 2001, the volatility of electricity and natural gas prices has affected the ability of campuses to manage overall OMP costs.

Key Cost Drivers and Market Activity

In October 2015, following the discovery of a massive natural gas leak, SoCalGas closed its Aliso Canyon natural gas storage facility. Even with the closing and subsequent slow reopening of this facility, the natural gas commodity forward curve continues to be at general historic lows.

Due to the influx of electricity from new solar projects in California resulting from California's renewable energy standard, wholesale electricity markets are experiencing changes to hourly electricity prices. Prices for wholesale electricity during periods of solar generation can be quite low, and prices for electricity are higher in the three hours preceding and following each day's solar production. This wholesale price pattern is one driver leading some major California investor-owned utilities to propose shifts in their peak time-of-use periods to the late afternoon and evening when solar output is low and declining. UC has made large investments in on-campus solar energy generation, so the changes in utility rates may make these projects less cost-competitive over time.

Cap and Trade

In 2013, California began a cap and trade program after the approval of AB 32, the Global Warming Solutions Act of 2006. Under the cap and trade program, the State established an overall limit on greenhouse gas (GHG) emissions through 2020. Facilities subject to Air Resources Board (ARB) jurisdiction must obtain permits (California Carbon Allowances) equivalent to their GHG emissions through State-run auctions or secondary markets.

Six UC campuses are obligated to participate in the cap and trade program, as their emissions exceed 25,000 metric tons of carbon-dioxide-equivalent per year (the ARB threshold). In April 2014, the California Air Resources Board approved amendments to the cap and trade regulations, to allocate to the University through 2020 a large portion of the allowances UC needs to comply with the regulations. Three campuses, in addition to the six covered campuses, voluntarily opted into the cap and trade program to be able to receive the allowance disbursement. By opting in, these campuses have avoided a large portion of the costs associated with cap and trade should their emission levels increase over time.

In July 2017, legislation to continue California's cap and trade program through 2030 was signed into law (Assembly Bill 398). Among other items, when implemented by the California Air Resources Board, the law should extend California's cap-and-trade program; lower California's cap on GHG emissions to 40% below the 1990 level by December 31, 2030; continue transitional assistance to the University of California (whereby UC receives carbon allowances as described above); and raise the floor price on auctioned allowances. The overall effect on UC is positive: the University will continue to receive transition assistance; however, should UC enter the carbon market to obtain California Carbon Allowances, the University may see higher prices.

Carbon Neutrality Initiative

At the November 2013 Regents meeting, President Napolitano announced as part of her suite of initiatives that the University would be the first major research university to achieve climate neutrality, setting a target date of 2025. To reach this goal of becoming carbon neutral in operations by

PURCHASED UTILITY TERMINOLOGY

Biogas: methane produced from the decomposition of organic matter, sourced from the anaerobic digestion of agricultural waste, landfills, and wastewater treatment facilities.

Carbon allowances: permits used in the State's cap and trade program. Each allowance must be surrendered by obligated entities for every metric ton of carbon equivalent emissions.

Carbon (equivalent) emissions: the emission of carbon dioxide into the atmosphere, which is a major contributor to global warming.

Co-generation: on-campus sequential generation of electricity and steam for operations.

Commodity pricing/costs: the price paid for the generation component of electricity, excluding transmission and distribution services provided by the utilities.

Direct access: procurement by a retail customer of electric commodity from an Electric Service Provider. The electric commodity is delivered by the local utility.

Electricity deliveries: the role of a distribution utility in furnishing the infrastructure to deliver third party generated energy.

Electric Service Provider (ESP): a non-utility entity that offers electric service to customers within the service territory of an electric utility.

Fracking: oil and gas extraction via the fracturing of rock by a pressurized liquid.

Renewable energy content: the ratio of renewable energy in the energy commodity (e.g., electricity).

Statewide Energy Partnership (SEP): a partnership between the University, and the four California investor-owned utilities (e.g., PG&E) to incentivize energy efficiency projects.

2025, the University needs to transform the profile of its energy sources. The University is considering five strategies to meet its carbon neutrality goals: Campus Energy Efficiency, On-campus Renewable Energy, Wholesale Electricity, Biogas Procurement, and Procurement and Management of Environmental Attributes. In the long term, each campus is addressing central plant infrastructure from a carbon neutrality perspective. The University will likely emphasize energy efficiency and obtain environmental attributes in the form of renewable energy credits, biogas, and/or offsets that, when netted against our carbon footprint, create carbon neutrality.

Strategic Efforts to Manage Purchased Energy Utility Costs and Reduce Carbon Emissions

The University has continued its efforts to obtain favorable commodity contracts while enacting a long-term strategy for energy procurement that will reduce costs and advance efforts to meet the goal of becoming carbon neutral in operations by 2025.

The University has made remarkable progress in reversing the growth of greenhouse gas emissions. Campuses continue to implement energy efficiency projects that will create additional energy demand reduction and cost savings, while supporting their progress toward carbon neutrality. It is important to note that from an energy intensity perspective, UC is unique among other California higher education systems due to the significant number of laboratory, healthcare, and other specialized research facilities in the system. Such heavily regulated buildings with complex mechanical systems and extended hours of operation account for nearly two-thirds of the energy use in the University’s State-eligible space, as shown in Display XIV-4.

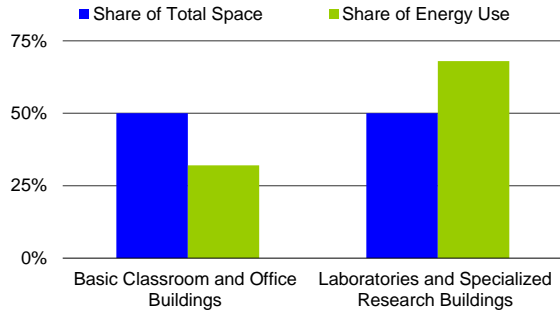
Energy Efficiency

The University continues to expand its efforts on energy efficiency projects and develop small- to medium-scale renewable energy sources at all campuses.

In addition to commodity rates, purchased utilities costs are affected by consumption levels. Without additional State funding, UC has sought to mitigate rising purchased utilities costs and reduce GHG emissions by moving aggressively to manage overall energy consumption.

UC continues to implement stringent energy conservation measures, undertake capital improvements to maximize the efficiency of new buildings, and invest in energy efficiency projects. These efforts include installing energy monitoring and metering systems, retrofitting existing facilities to upgrade temperature controls, implementing efficient lighting systems, and optimizing heating, ventilation, and air conditioning (HVAC) systems. As a cost-effective way to reduce emissions, UC recently adopted a new internal policy goal to reduce growth-adjusted energy use by 2% each year.

Display XIV-4: Energy Use by Building Type



Laboratories and specialized research facilities consume on average more than two times the energy used by campus classroom and office buildings.

Historically, many of the University’s energy efficiency projects have been subsidized by the state’s investor-owned utilities under the auspices of the Statewide Energy Partnership (SEP). Results through August 2017 indicate that the partnership completed more than 1,000 energy efficiency projects that generated \$90 million in incentive payments from the utilities to offset project costs. By the end of 2017, completed projects delivered over \$250 million in cumulative avoided costs to the participating campuses. Despite the great results, the partnership has now reached the point of diminishing returns, and UC has worked with Southern California Edison and the California Public Utilities Commission (CPUC) to create a next-generation incentive program that targets reductions in carbon emissions based on measured whole-campus performance.

Electricity Procurement

The University of California began directly supplying electricity to many of its campuses and medical centers on January 1, 2015 as part of the initiative to become the first research university to achieve carbon neutrality by 2025. The long term goal is to supply campuses with cost-effective, carbon-free electricity. UC is able to be the supplier through California’s Direct Access rules. Direct Access is an optional service that allows retail customers to purchase electric supplies and additional energy services directly from electric service providers. Roughly 25% of UC’s energy comes from Direct Access service. The remaining electric supply comes from traditional utility service, municipal utilities, or federal supply.

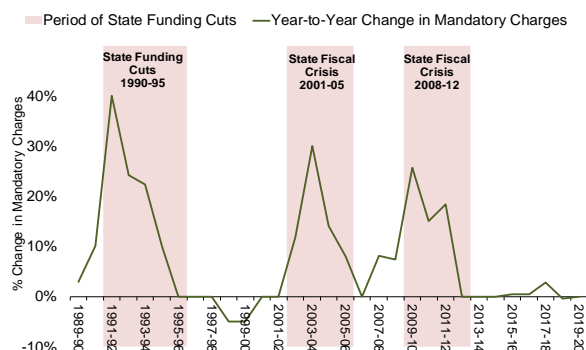
As part of UC's effort to actively manage energy cost, UC signed two Power Purchase Agreements (PPAs) with a renewable developer focused on solar energy technology. The two agreements secure solar energy for UC for 25 years, and allow UC to supply approximately 200 gigawatt-hours per year (GWh/year) of solar energy to California's electrical grid. The first project commenced delivery of renewable energy in fall 2016, and the second project commenced operation in summer 2017.

Student Tuition and Fees

To support its core educational programs and the services needed to perform them, the University relies primarily on revenue from three fund sources: State General Funds, student tuition and fees, and UC General Funds (“core funds”). During the last eight years as the State has been restoring the University’s State General Funds support to the pre-Great Recession levels, UC has increased Tuition only once. Since 2000-01, core funding per student has declined by over 30%¹ and the University’s reliance on student tuition and fees has grown. Although State support has increased modestly during times of fiscal stability, these increases have not been enough to both fully restore prior funding levels and keep pace with enrollment growth. Consequently, the composition of UC’s core funds have changed, with a greater share derived from student tuition and fees (including those covered by Cal Grants, discussed further in the *Student Financial Aid* chapter) and UC General Funds and a smaller share from direct State support. As a percentage of the University’s core fund operating budget, student tuition and fees have grown from less than 4% in 1980-81 to 42% in 2018-19, while State support has declined from 87% in 1980-81 to 40% today. In 2018-19, tuition and fees provided approximately \$4.9 billion² to help support basic operations.

Trends in State support have affected both the size and the volatility of tuition increases. Aligning close with economic downturns as shown in Display XV-1, the past three decades have seen periods of rapid increase in student tuition and fees as well as periods of great stability. Between 2000 and 2011, for example, undergraduate in-state tuition increased in nine out of ten years, with increases ranging from \$384 to \$1,818. By contrast, since 2011, in-state tuition has increased once, by \$282, or 2.5%, in 2017. The substantial, variable, increases of the early 2000s, which were implemented in response to large declines in State support, created planning challenges for

Display XV-1: Year-to-Year Percentage Change in Mandatory Charges Over the Past Thirty Years (Not Adjusted for Inflation)



UC’s tuition levels have been subject to chronic volatility, with increases closely mirroring the State’s fiscal condition. Tuition has increased to offset State budget cuts.

students and families. The nearly flat tuition levels since 2011, on the other hand, have created planning challenges for campuses because they were not always accompanied by anticipated increases in State support for the UC’s base budget or State support for enrollment growth.

Within this context, it is important to note that UC’s average tuition and fees for state residents remain low relative to the amounts charged by most of the University’s public comparison institutions, while the University’s nonresident surcharges remain competitive, as shown in Display XV-2 on the following page.

Furthermore, as described in the *Student Financial Aid* chapter, about half of UC’s California undergraduates earn their degree without incurring any student loan debt. University grants and scholarships have allowed the University to remain financially accessible to students across socioeconomic levels despite rising costs, as evidenced by the large number of UC undergraduates who qualify for federal Pell Grants (reserved for those with the fewest financial resources) and UC students’ comparatively low student loan indebtedness upon graduation.

¹ This figure accounts for financial aid, debt service, retirement plan contributions, and inflation.

² This amount includes revenue from mandatory systemwide charges, Professional Degree Supplemental Tuition, and Nonresident Supplemental Tuition, but excludes fees charged at the campus level (discussed later in the chapter), self-supporting graduate professional degree program fees, and UC Extension fees.

Student Tuition and Fees

Display XV-2: 2019-20 University of California and Public Comparison Institution Fees

	Undergraduate		Graduate	
	Resident	Nonresident	Resident	Nonresident
Public Comparison Institutions				
SUNY Buffalo	\$10,524	\$28,194	\$14,130	\$25,920
Illinois				
Lowest	\$15,122	\$30,744	\$16,028	\$31,046
Highest	\$20,126	\$42,486		
Average	\$17,624	\$36,615		
Michigan				
Lowest	\$15,558	\$51,200	\$24,218	\$48,532
Highest	\$21,458	\$59,444		
Average	\$18,508	\$55,322		
Virginia				
Lowest	\$15,422	\$48,194	\$18,806	\$30,300
Highest	\$24,286	\$56,118		
Average	\$19,854	\$52,156		
UC	\$14,022	\$43,776	\$13,501	\$28,603

Note: Comparison institution figures include tuition and required fees. UC figures include campus-based fees, mandatory systemwide charges, and Nonresident Supplemental Tuition for nonresident students. Waivable health insurance fees are not included. Undergraduate figures for Illinois, Michigan, and Virginia represent the average of the highest and lowest rates at each school. Actual rates may vary by major and/or year in school.

TYPES OF CHARGES

Students³ at the University of California pay the following types of charges:

- **Tuition**, a mandatory systemwide charge assessed to all registered students providing general support for UC's budget
- The **Student Services Fee**, a mandatory systemwide charge assessed to all registered students that supports services benefiting students such as individual and group tutorial services in writing, mathematics, and study skills
- **Nonresident Supplemental Tuition**, charged to nonresident students in addition to mandatory systemwide charges and any applicable Professional Degree Supplemental Tuition charges, in lieu of State support for their cost of education
- **Professional Degree Supplemental Tuition**, paid by students enrolled in a number of graduate professional degree programs to support instruction and specifically to sustain and enhance program quality
- **Fees Charged at the Campus Level**, which vary across campuses and by student level, and fund student-related expenses not supported by other fees

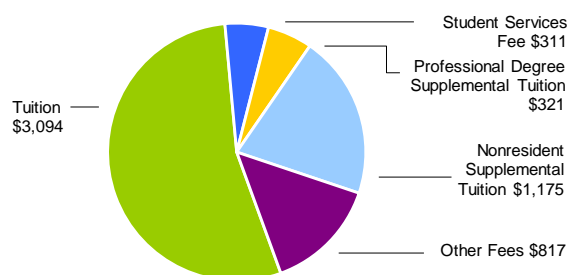
³ Although included in enrollment counts as students, medical and other health sciences residents (house staff) are not assessed student charges.

Display XV-3: 2019-20 Student Tuition and Fee Levels

Student Services Fee	\$1,128
Tuition	\$11,442
Professional Degree Supplemental Tuition	\$4,542-\$48,262
Nonresident Supplemental Tuition	
Undergraduate	\$29,754
Graduate Academic	\$15,102
Graduate Professional	\$12,245
Campus-based Fees*	
Undergraduate	\$670-\$1,925
Graduate	\$369-\$1,617

* Waivable health insurance not included.

Display XV-4: 2018-19 Student Tuition and Fee Revenue (Dollars in Millions) (Total: \$5.7 Billion)



In 2018-19, student tuition and fees generated \$4.9 billion to support the University's core operating budget and student financial aid. Campus-based/other fees totaling \$817 million support specific programs outside the core budget, such as student government and transportation.

Display XV-3 lists the level of each charge in 2019-20. Their respective contributions to the University's core operating budget and financial aid in 2018-19 are shown in Display XV-4. Each type of charge is described in greater detail below.

Tuition

Established as the Educational Fee in 1970 for capital outlay purposes, Tuition is charged to all registered students, and provides general support for the University's operating budget, including costs related to general campus and health sciences faculty and instructional support, libraries and other academic support, student services, institutional support, and operation and maintenance of facilities. Tuition revenue is also used to provide student

financial support. For the 2019-20 academic year, Tuition is \$11,442, the same level as the prior year.

The Regents set Tuition levels annually in accordance with the 1994 Student Tuition and Fee Policy,⁴ which directs the President of the University to recommend annual Tuition levels to the Regents, taking five factors into consideration:

- the resources necessary to maintain access under the Master Plan, to sustain academic quality, and to achieve the University's overall mission;
- the full cost of attending the University;
- the amount of support available from different sources to assist needy students;
- overall State General Fund support for the University; and
- the full cost of attendance at comparable public institutions.

Under the 1994 Student Tuition and Fee Policy, Tuition revenue may only be used for general support of UC's operating budget and not for capital expenditures as initially intended when established in 1970. In 2018-19, Tuition generated \$3.1 billion for operations. The University is currently exploring the role of student tuition and fees in its multi-year budget plan, along with alternative approaches for assessing those charges. Among the approaches under consideration is a cohort-based tuition model, in which the University would seek to keep certain systemwide charges – Tuition, the Student Services Fee, and Nonresident Supplemental Tuition – flat for most students while they enrolled at UC, with any changes applying only to incoming cohorts of new students. A systemwide working group has been formed to develop recommendations about how cohort tuition might be applied at UC and to compare the merits and challenges of cohort tuition with other tuition models, including the impact on affordability for students.

Student Services Fee

The Student Services Fee is also charged to all registered students. Revenue from the fee funds services and programs that are not part of the University's programs of instruction, research, or public service. In 2018-19, \$311 million in Student Services Fee revenue was collected, a majority of which was spent on student services, including counseling and career guidance, cultural

and social activities, and student health services. Student Services Fee revenue is also used for capital improvements that provide extracurricular benefits for students. As with Tuition, the Regents set Student Services Fee levels annually in accordance with the 1994 Student Tuition and Fee Policy. A portion of the Student Services Fee is provided as financial aid to the neediest students.

Chancellors are authorized to determine specific allocations of Student Services Fee income on their campuses, within applicable University policies and guidelines. Each campus has a Student Fee Advisory Committee, the membership of which is at least half students, to advise the chancellor. In 2019-20, the Student Services Fee is \$1,128 for all students.

Professional Degree Supplemental Tuition

Professional Degree Supplemental Tuition (formerly known as the Fee for Students in Selected Professional Schools) was established in 1994-95 to allow UC's professional schools to maintain program quality as program costs grew faster than other funding sources. Assessed in addition to mandatory student charges and, if applicable, Nonresident Supplemental Tuition, Professional Degree Supplemental Tuition (PDST) levels during 2019-20 range from \$4,542 to \$48,262, depending on the program, campus, and student residency. See Appendix Display 15 for a list of programs that assess PDST and their accompanying PDST levels in 2019-20. In 2018-19, these charges generated \$321 million for the respective professional school operations.

Historically, many of UC's professional schools have held a place of prominence in the nation, promising an exceptional education at a reasonable price. Budget cuts reduced resources available to the professional schools.

Consequently, they face reduced capacity to recruit and retain excellent faculty, provide an outstanding curriculum, and attract high caliber students. New revenue generated from PDST increases has been critical to attracting high-caliber faculty and students and to regaining and maintaining excellence despite budget cuts.

The Regents approve PDST charges in the context of multi-year plans that advance the mission and academic plans of

⁴ See <https://regents.universityofcalifornia.edu/governance/policies/3101.html>.

each graduate professional degree program per the PDST Policy⁵. Multi-year planning with regard to PDST is a vital and fiscally prudent strategy that:

- provides a more stable planning environment for professional schools;
- allows the schools to act on long-term investment needs such as new faculty positions, facility needs, and financial aid program development;
- provides each program the opportunity to comprehensively analyze its program needs, the costs to address those needs, and the revenue available to support those needs;
- allows each program to examine its competitiveness with other institutions on a number of measures, including the “sticker price” of attendance, financial aid programs and their impact on the net cost to students, and other indicators of national competitiveness of the program;
- helps inform decision making by clearly identifying each degree program’s goals and objectives and the steps needed to achieve them; and
- enables each program to consult with students and faculty about long-term plans and tuition levels.

The PDST policy also includes specific conditions for ensuring that the University’s commitment to access, affordability, diversity, and students’ public service career decisions are not adversely affected by fee increases for professional degree students.

At their January and March 2019 meetings, the Regents established PDST levels for two new programs and approved increases in PDST levels for 42 current programs beginning in the 2019-20 academic year. Also effective academic year 2019-20, the President approved increases up to 5% for existing PDST programs, consistent with the authority granted by the Regents at their November 2014 meeting, which authorized the President to approve increases up to 5% for existing programs for academic years 2015-16 through 2019-20.

Nonresident Supplemental Tuition

In addition to all other applicable tuition and fees, UC students who do not qualify as California residents are required to pay Nonresident Supplemental Tuition. Enrollment of nonresident students, including

STATE LAW REGARDING NONRESIDENT TUITION

Section 68052 of the California Education Code directs California’s public institutions of higher education to acknowledge the following when establishing nonresident student tuition levels:

- nonresident tuition methodologies used by California’s public postsecondary education segments should consider: 1) the total nonresident charges imposed by each of their public comparison institutions, and 2) the full average cost of instruction;
- nonresident tuition plus required fees should not fall below the marginal cost of instruction;
- increases in the level of nonresident tuition should be gradual, moderate, and predictable; and
- in the event that State revenues and expenditures are substantially imbalanced due to factors unforeseen by the Governor and the Legislature, nonresident tuition will not be subject to the law’s provisions.

undergraduate and graduate international students and domestic students from other states, generated \$1.2 billion in 2018-19.

The California Education Code provides direction to UC about setting Nonresident Supplemental Tuition levels (see “State Law Regarding Nonresident Tuition”). Nonresident Supplemental Tuition levels in 2019-20 vary by student level and program: \$29,754 for undergraduate students, \$15,102 for graduate academic students, and \$12,245 for graduate professional students.

Undergraduates who enroll as nonresidents typically pay Nonresident Supplemental Tuition every term that they attend UC, unless a student’s parents move to California or the student is deemed financially independent (a standard that is difficult to meet). Domestic graduate students are generally presumed to be financially independent and typically establish residency after one year. International students cannot establish residency and hence pay Nonresident Supplemental Tuition every year (although graduate academic students are exempt from this charge for up to three years once they advance to candidacy).

Fees Charged at the Campus Level

Campuses may also charge fees for specific needs related

⁵ See <https://regents.universityofcalifornia.edu/governance/policies/3103.html>.

to campus life and safety or instruction. Among the largest fee types assessed at the campus level include campus-based fees and Course Materials and Services Fees.

Campus-based Fees. Campus-based fees⁶ cover a variety of student-related expenses that are not supported by Tuition or the Student Services Fee. These fees help fund programs such as student government; the construction, renovation, and repair of sports and recreational facilities; and other programs and activities such as transit. As shown in Display XV-5, the number and dollar amounts of campus-based fees vary across campuses and between undergraduate and graduate students.

Campus-based fees for 2019-20 range from \$369 at San Francisco (graduates) to \$1,925 at Davis (undergraduates); in 2019-20, average campus-based fees are \$1,452 for undergraduates and \$931 for graduates.⁷ Generally, students must vote to establish or increase campus-based fees, but these fees also can be set by chancellors (with the concurrence of the Regents) if a fee is necessary to help ensure the safety of students (e.g., to pay for the seismic retrofit of a building funded by student fees). In recent years, a return-to-aid component has been built into newly established campus-based fees.

Course Materials and Services Fees. Course Materials and Services Fees cover costs specific to a course, such as materials used in a studio art class, travel costs for an archeological dig, or laboratory supplies related to a specific course. The fees are set by the chancellors and may not exceed the actual cost of the materials and services provided for the course. In 2018-19, over \$35 million in Course Materials and Services Fees revenue was collected at UC's ten campuses.

HISTORY OF STUDENT FEES

The University first assessed student fees in the 1920s with the establishment of the Incidental Fee. In 1960, the California Master Plan for Higher Education affirmed that UC should remain tuition-free, but allowed that fees could be charged for costs not related to instruction. In the late

Display XV-5: 2019-20 Campus-based Fee Levels

<u>Campus</u>	<u>Undergraduate</u>	<u>Graduate</u>
Berkeley	\$1,683	\$1,617
Davis	\$1,925	\$1,028
Irvine	\$1,157	\$779
Los Angeles	\$670	\$383
Merced	\$968	\$637
Riverside	\$1,283	\$1,014
San Diego	\$1,845	\$885
San Francisco	N/A	\$369
Santa Barbara	\$1,821	\$984
Santa Cruz	\$1,421	\$1,238
Average	\$1,452	\$931

1960s, the Incidental Fee was renamed the Registration Fee, and revenue was used to support student services and financial aid. In 2010, the Registration Fee was renamed the Student Services Fee.

The Educational Fee was established in 1970-71 and was originally intended to fund capital outlay. Each year, however, a greater proportion of this fee was allocated for student financial aid. Consequently, in the late 1970s, the Regents stipulated that Educational Fee income was to be used exclusively for student financial aid and related programs. In 1981, the Regents extended the Educational Fee's use to include basic student services, which had lost State General Fund support.

In 1994, the University of California Student Fee Policy established that the Educational Fee may be used for general support of the University's operating budget. In addition, a goal of the policy is to maintain the affordability of a high-quality educational experience at the University for low- and middle-income students. In 2011, the Educational Fee was renamed Tuition.

Over time, UC's tuition and fee levels have largely tracked the state's economy. In more economically stable years, such as during the mid-1980s and the late 1990s, charges were held steady or were reduced. In years of fiscal crisis – during the early 1990s and during the early 2000s, for example – tuition and fees increased dramatically in response to significant reductions in State funding, although these increases only partially compensated for the

⁶ UC's Policy on Compulsory Campus-Based Student Fees is available at <https://policy.ucop.edu/doc/2710528/PACAOS-80>.

⁷ Campus-based fee figures are weighted by enrollment and do not include waivable health insurance premiums.

reductions in State support. The appendices to this document include historical tuition and fee levels for UC students by level and residency.

**RECENT HISTORY OF UNIVERSITY OF CALIFORNIA
STUDENT TUITION AND FEE LEVELS**

2011-12	In November 2010, the Regents approved an 8% increase in mandatory systemwide charges for 2011-12. Professional Degree Supplemental Tuition increased from 0% to 31%. Due to reductions in State support for UC, mandatory systemwide charges for 2011-12 increased by an additional 9.6% in July 2011.
2012-13	Because the 2012-13 State budget called for UC to avoid a Tuition increase, mandatory systemwide charges did not increase in fall 2012. Professional Degree Supplemental Tuition increased from 0% to 35%.
2013-14	Due to the Governor's proposed multi-year plan, mandatory systemwide charges did not increase in fall 2013. Professional Degree Supplemental Tuition increased by 8% for UC's nursing programs and was held flat for all 53 others programs.
2014-15	Mandatory systemwide charges did not increase in fall 2014. The President announced the University's Tuition and Financial Aid Stabilization Plan ⁸ to bring predictability to UC's systemwide charges.
2015-16 to 2016-17	Under the long-term funding framework, Tuition did not increase in 2015-16 or 2016-17, extending the Tuition freeze to six consecutive years. The Regents approved annual increases of 5% to the Student Services Fee 2015-16 and 2016-17. Undergraduate Nonresident Supplemental Tuition increased by 8% and Professional Degree Supplemental Tuition increased moderately during this period.
2017-18	A Tuition increase in 2017-18 was pegged to inflation and the Student Services Fee increased by 5%. Professional Degree Supplemental Tuition increased up to 5% for 44 programs, with the remaining programs keeping levels unchanged. Undergraduate Nonresident Supplemental Tuition increased by 5%.
2018-19 to 2019-20	With the State buy-out of Tuition and the Student Services Fee increases, Tuition levels were reduced by \$60 and the Student Services Fee remained unchanged in 2018-19. The University held Tuition and the Student Services Fee flat in 2019-20. Professional Degree Supplemental Tuition and undergraduate Nonresident Supplemental Tuition increased moderately during this period.

⁸ See <https://regents.universityofcalifornia.edu/regmeet/nov14/l3.pdf>.

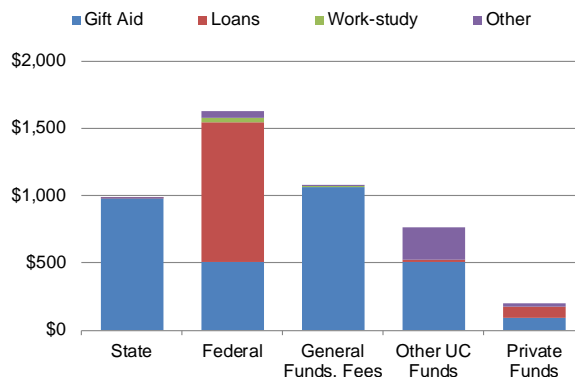
Student Financial Aid

Guided by the Regents' financial aid policy, the University's financial aid programs are closely linked to the University's goals of expanding student access and helping the state meet its professional workforce needs.¹ In 2017-18 (the most recent year for which information is available), UC students received \$4.7 billion in financial aid, of which \$1.9 billion (40%) was funded by UC. Maintaining robust undergraduate and graduate aid programs remains among the University's highest budget priorities.

At the undergraduate level, the goal of UC's financial aid program is to ensure that the University remains financially accessible to all eligible students. During the 2017-18 academic year, 57% of all California resident undergraduates received grant or scholarship assistance that fully covered their mandatory systemwide charges. Among all UC undergraduates, 65% received grant/scholarship aid averaging \$17,377 per recipient. The University of California is recognized as a national leader in enrolling an economically diverse pool of undergraduate students. In 2016-17, 38% of all UC undergraduates, and 45% of California undergraduate residents, were low-income Pell Grant recipients – more than at any other comparably selective research institution. In addition, 52% of UC's 2017-18 graduating undergraduates had no student loan debt. The average debt among the other 48% who borrowed was \$18,595 (\$21,100 for students who were admitted as freshmen), well below the national average of \$28,350.

At the graduate level, the Regents' financial aid policy calls upon the University to attract a diverse pool of highly qualified students by providing a competitive level of support relative to other institutions. Competitive support is key because graduate student enrollment is critical both to the University's research enterprise and to helping the state meet its academic and professional workforce needs. In 2017-18, 66% of graduate students received grant or fellowship support averaging about \$19,401 per recipient.

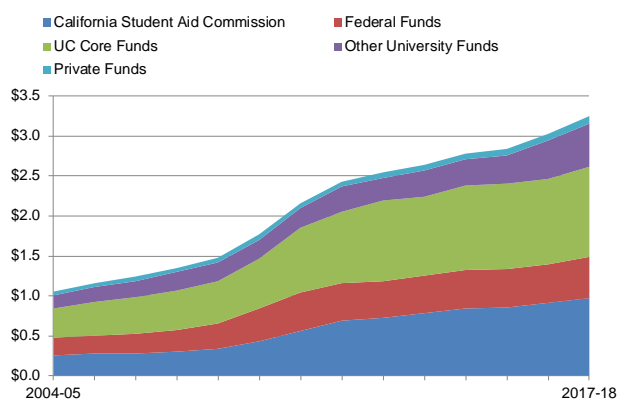
Display XVI-1: 2017-18 Financial Aid by Type and Source of Funds (Dollars in Millions) (Total: \$4.7 Billion)



	State	Federal	General Funds, Fees	Other UC	Private
Gift Aid	\$977.1	\$510.2	\$1,063.7	\$509.8	\$91.0
Loans	\$5.3	\$1,036.3	\$0.0	\$12.6	\$82.4
Work-study	\$0.0	\$27.3	\$9.0	\$0.0	\$0.0
Other	\$0.9	\$53.1	\$6.6	\$240.6	\$27.3
Total	\$983.3	\$1,626.9	\$1,079.3	\$763.0	\$200.7

State, federal, and UC sources each provide large amounts of gift aid (i.e., scholarships and grants) for UC students, while federal funds provide the bulk of student loans.

Display XVI-2: Gift Aid Expenditures by Source (Dollars in Billions)



To offset tuition and fee increases and maintain the promise of higher education for all Californians, both the University and the State have invested heavily in student financial support. Total gift aid reached \$3.2 billion in 2017-18, half of which was generated from UC sources.

¹ The UC Financial Aid Policy is available at <http://regents.universityofcalifornia.edu/governance/policies/3201.html>.

In addition, teaching assistantships and research assistantships provide support to 52% of graduate students.

The University has faced challenges in recent years related to achieving its goals of affordability at the undergraduate level and competitiveness at the graduate level. Earlier this decade, tuition and fee increases were implemented in response to declining State support for the University's budget. Tuition and fee levels remained nearly flat from 2011-12 through 2017-18, while other elements of the total cost of attendance (e.g., living expenses, books, and supplies) increased. Increases in Professional Degree Supplemental Tuition, which were implemented to help professional schools maintain the quality of their programs, also increased the demand for financial aid.

The University has responded to these challenges by adopting measures to expand the availability of student support and to mitigate student cost increases – for example, by augmenting funding for grants and fellowships, raising philanthropic support for scholarships, limiting Nonresident Supplemental Tuition increases for graduate students, and expanding loan repayment assistance programs for professional degree students choosing public interest careers.

Each year UC prepares a comprehensive report for the Regents describing the grant and scholarship aid, student loans, and University employment undergraduate and graduate students receive to finance their education.² The University will continue to closely monitor the effectiveness of its financial aid programs in achieving the goals, articulated by the Regents, of affordability at the undergraduate level and competitiveness at the graduate level.

FUND SOURCES FOR FINANCIAL AID

UC students may receive scholarships, fellowships, grants, loans, work-study jobs, and tuition and fee remissions to assist them in paying the educational costs of attending UC. The cost of attendance includes tuition and fees, living expenses, books, and other expenses. UC students receive assistance from four major fund sources: State aid

UNIVERSITY OF CALIFORNIA BLUE AND GOLD OPPORTUNITY PLAN

The Blue and Gold Opportunity Plan ensures that financially needy California resident undergraduates with total family incomes under \$80,000 have their Tuition and Student Services Fee covered by scholarship or grant awards, up to the student's need. This plan, introduced in 2009-10, helps ensure that these charges do not deter the half of California households with incomes below \$80,000 from aspiring to attend UC. Over half of California resident undergraduates at UC are expected to qualify for the plan in 2018-19.

programs, federal aid programs, University funds, and private entities.

State Aid Programs

California students at all eligible California colleges and universities may receive financial support from programs administered by the California Student Aid Commission (CSAC), including the Cal Grant A and B Programs:

- The Cal Grant A Program is the largest of the State's student aid programs and provides grants covering UC systemwide charges for financially needy, meritorious undergraduates.
- The Cal Grant B Program provides grants covering systemwide charges and a small stipend for living expenses to undergraduates from particularly low-income backgrounds. Generally, first-year recipients receive only the stipend and the stipend plus a tuition grant in subsequent years.

The Cal Grant programs are designed to promote access to postsecondary education and to foster student choice among California institutions of higher education. Cal Grant awards for recipients attending UC and the California State University (CSU) cover systemwide student charges, but only Cal Grant B provides minimal assistance to help students cover other costs of attendance, such as housing.

In 2017-18, approximately 86,000 UC students were awarded \$983.3 million in State-sourced financial aid. Cal Grant funding comprised the bulk of the funding but the Middle Class Scholarship (MCS) Program comprised \$24.7 million of the total. State financial aid for UC students has increased as UC's enrollment and systemwide charges have increased. Administered by UC, the Dream Loan program (\$5 million) is jointly funded by the State and the

² The *Annual Report on Student Financial Support* is available at <http://ucop.edu/student-affairs/data-and-reporting/>.

University. UC works with the other segments of California higher education and other stakeholders to ensure that the State maintains its historic commitment to the Cal Grant program, and that the program continues to be funded at necessary levels in the event of future increases in tuition and fees.

The MCS Program completed its four-year phase in 2017-18 and is designed to ensure that eligible students with limited or no financial aid receive scholarship assistance to cover up to a specified portion of in-state tuition – 40% for students with family incomes and assets less than \$110,000, falling to 10% for those with incomes and assets up to \$165,000. (The actual percentage of tuition covered is a function of the funding appropriated by the State for the program and the pool of eligible applicants.)

Additionally, the 2019 Budget Act provided \$4 million for summer-term financial aid for UC students who are both California residents (including students receiving an exemption from Nonresident Supplemental Tuition) and eligible for State financial aid. This funding will be available through summer 2021. Continued funding beyond summer 2021 is contingent upon estimated State General Fund revenues in 2021-22 and 2022-23.

Federal Aid Programs

UC students who are U.S. citizens or legal permanent residents receive federal financial aid in four ways:

- Federal grants and scholarships worth \$510.2 million in 2017-18, which comprised 13% of all grants and scholarships received by UC students that year;
- Loans totaling \$1 billion in 2017-18;
- Work-study funds totaling \$27.3 million in 2017-18; and
- Federal tax credits, which benefit many UC families. Nationally, the value of these federal benefits has grown steadily since their introduction in 1997. Tax credits are described in greater detail at the end of this chapter.

While distinct from federal financial aid programs, federal research grants also provide financial support to many students, primarily those in graduate doctoral programs.

University Funds

University funds consist of two components: University core operating funds and other University aid funds. The University designates over \$1 billion in UC core operating

funds – student tuition and fee revenue, UC General Funds, and State General Funds – for student financial support. Approximately \$510 million in other University aid funds are provided through campus-based programs funded by endowment income, current gifts, and campus discretionary funds in the form of fellowships, scholarships, and grants.

Historically, the University has funded its systemwide aid programs largely by setting aside a portion of revenue from tuition and fee increases for financial aid for needy students. This practice is called “return-to-aid.” Whenever there is an increase in undergraduate Tuition and/or the Student Services Fee, the University sets aside 33% of new revenue for need-based grant assistance. Together with the State’s Cal Grant program, this assistance is enough to offset the increases in tuition and fees for over half of California resident undergraduate students, and to provide the neediest students with additional assistance to help offset other cost increases described above.

Consistent with past practice, the University also sets aside 50% of the new revenue from Tuition and Student Services Fee increases charged to graduate academic students, and 33% of the increases charged to students in graduate professional degree programs, for graduate student support. Graduate professional degree programs are also expected to supplement financial aid resources by an amount equivalent to at least 33% of new Professional Degree Supplemental Tuition revenue, or to maintain a base level of financial aid equivalent to at least 33% of total Professional Degree Supplemental Tuition revenue. In addition, campuses are expected to set aside a minimum of 25% of the revenue from newly enacted campus-based fees for return-to-aid.

As UC more fully recognized student financial need not covered by external resources, and as student need increased over time, the percentage of revenue from tuition and fee increases dedicated to financial aid also increased. In 1987-88, the percentage of new tuition and fee revenue dedicated to financial aid was 16%; this proportion is now 33% for undergraduates.

In the latter half of 2015-16, UC implemented the Dream Loan program for undergraduate undocumented AB 540 students – see the “Other Financial Assistance” section on

the AB 540 Tuition exemption. Starting in 2020-21, this program will extend to qualifying graduate students, too. This program helps level the playing field for undocumented students, who have never had access to federal loan programs – the primary source of loans for documented UC students. In 2017-18, UC administered \$5 million in Dream loans. Going forward, UC expects to continue administering up to \$5 million annually in loans to eligible students through this program.

In 2019 the Legislature passed SB 77, which allows the University to provide aid funded by money received for that purpose (e.g., endowed scholarships) to undocumented students who do not qualify under the California Dream Act until June 30, 2021. This is in addition to the University and State financial aid available since 2013 to UC's undocumented students who qualify under AB 540. In 2017-18, UC AB 540 undocumented students received \$44M in Cal Grants and \$56M in UC-funded need-based financial aid.

Redirecting Nonresident Undergraduate Aid to Support California Resident Enrollment Growth. In the 2015 Budget Act, the Legislature identified funds provided to nonresident undergraduates as need-based grants as a potential resource for supporting an increase in the number of California resident undergraduates that UC enrolls. In 2016-17, the University began to phase out funding for need-based grants for nonresident undergraduates and, instead, use these funds to support California resident enrollment growth. Nonresident students who entered UC before fall 2016 remain eligible to be considered for awards while they progress toward their degree objective, but cohorts of new nonresident undergraduates entering UC in fall 2016 or later are not eligible.

As part of the 2019-20 Regents Budget, a return-to-aid on Nonresident Supplemental Tuition (NRST) was mandated as part of an increase to that charge. Campuses have long had the flexibility to return a portion of NRST revenue to financial aid, but the 2019-20 Budget included a set-aside of 10% of the increased revenue to provide financial aid to help continuing students afford the increase.

Private Support for Financial Aid

Private entities also provide student financial support

through scholarships and other forms of aid. Funds in this category include traineeships and fellowships from private firms, funds from associations and foundations (e.g., the Gates Millennium Scholars program and the American Cancer Society), and small scholarships from community organizations. In 2017-18, \$91.0 million was awarded to UC students from private agency programs, representing 2% of the gift aid students received during that year.

Private loans are an important financing option for students with unique circumstances, such as international students with no U.S. co-signers and students who have already borrowed the maximum allowable amount under federal student loan programs. Such loans are particularly important for students in professional degree programs due to the relatively high cost of those programs. UC students borrowed \$82 million from private lenders in 2017-18. UC makes extensive efforts to identify lenders that offer private student loans with competitive terms in order to help students in various programs make well-informed decisions about private loans.

UNDERGRADUATE STUDENT FINANCIAL AID

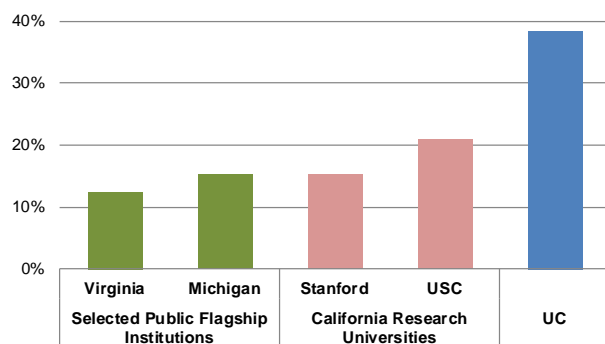
The University is committed to accessibility for undergraduate students across income groups, particularly low-income students. In 2016-17, 38% of UC undergraduates were low-income Pell Grant recipients – more than at any other comparably selective research institution. On the following page, displays XVI-3 and XVI-4 provide summary statistics of undergraduate student financial aid.

Financial aid also contributes greatly to the University's ability to enroll a diverse population of undergraduate students. African American, Chicano(a)/Latino(a), and Asian American undergraduate students are disproportionately low-income; 45%, 50%, and 31%, respectively, of these students have annual parent incomes of less than \$40,000 or are financially independent (generally financially independent students are low-income). Collectively, African American, Chicano(a)/Latino(a), and Asian American undergraduate students received 77% of all undergraduate gift aid in 2017-18.

Display XVI-3: Undergraduate Student Financial Aid At-A-Glance, 2017-18 All Year

Total Aid (includes Summer)	\$3.1 billion
Aid Recipients	67%
Gift Aid	
Total gift aid	\$2.4 billion
Gift aid recipients	63%
Average gift aid award	\$16,986
Gift aid awards based on need	Over 91%
Student Loans	
Students who took out loans	37%
Average student loan	\$8,570
Students graduating with debt	48%
Avg. debt at graduation among borrowers	\$18,595
Student Employment	
Students who worked	47%
Students who worked more than 20 hours per week	10%

Display XVI-4: 2016-17 Undergraduate Pell Grant Recipients

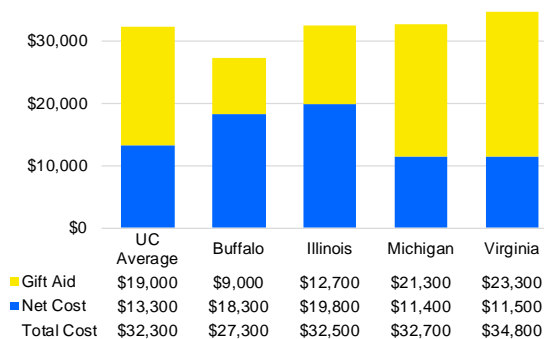


UC remains accessible for students from low-income families. UC has a very high proportion of federal Pell Grant recipients – 38% during 2016-17 (the most recent year from which there are data), more than at any comparable public or private research institution.

As noted earlier in the chapter, the State’s Middle Class Scholarship Program provides awards to students with annual family incomes of up to \$177,000. The University is closely monitoring this population, together with income trends among California families more generally

The average net cost of attendance for UC students is \$13,300 (see “UC Grant Assistance Under the Education Financing Model” on the following page), which represents the actual cost of attending UC for undergraduates after taking into account scholarship and grant assistance and is a good general measure of affordability. In 2017-18, the University’s *total* cost of attendance before financial aid was

Display XVI-5: 2017-18 Net Cost of Attendance for Undergraduate Aid Recipients



In 2017-18, undergraduate need-based aid recipients at UC received an average of \$19,000 in gift aid, resulting in a *net cost* of \$13,300. UC’s net cost in 2017-18 was lower than the net cost at two of its four public comparison institutions. For comparison purposes, this chart is limited to new freshmen.

lower than the total cost of attendance at three of UC’s four public comparison institutions, as shown in Display XVI-5. After adjusting for gift aid, UC’s *net cost* of attendance for resident need-based aid recipients remained lower than the estimated net cost at two of the University’s four public comparison institutions.

The Education Financing Model

Consistent with the financial aid policy for undergraduate students adopted by the Regents in January 1994, the University uses an integrated framework – the Education Financing Model (EFM) – to assess UC’s role in funding its financial support programs, to allocate financial aid across campuses, and to guide the awarding of aid to individual students. The framework is based on four principles:

- The University must acknowledge the total cost of attendance: resident student fees, living and personal expenses, and costs related to books and supplies, transportation, and health care.
- Financing a UC education requires a partnership among students, their parents, federal and state governments, and the University.
- To maintain equity among undergraduate students, all students, no matter which campus they attend or their income level, are expected to make a generally similar contribution from student loans and employment to help finance their education.
- Flexibility is needed for students in deciding how to meet their expected contributions and for campuses in

implementing the EFM to serve their particular student bodies.

These principles are reflected in the framework for determining the components of a student’s financial aid package (see “UC Grant Assistance Under the Education Financing Model” in the right inset).

Parent Contribution. Parents are expected to help cover the costs of attending the University if their children are considered financially dependent (which is the case for most UC undergraduates). The amount of the parental contribution is determined by the same formula used to determine need for federal and State aid programs. This formula takes into account parental income and assets (other than home equity and retirement accounts), the size of the family, the number of family members in college, and non-discretionary expenses. Particularly low-income parents have an expected contribution of zero.

Student Contribution. Undergraduates are expected to cover a portion of their educational expenses through part-time employment and borrowing. The expected contribution should be manageable so that students can make steady progress toward their degree objective and repay their loans after graduation. The EFM includes ranges for manageable loan and work expectations based on the University’s estimates of the minimum and maximum manageable loan/work levels, adjusted annually for inflation and periodically for market changes in student wages and expected post-graduation earnings.

The University’s goal is to provide sufficient systemwide funding to ensure that a student’s expected contribution from work and borrowing falls within the manageable range established by the EFM. The determination of funding levels for the University’s need-based grant program, how those funds are allocated across the campuses, and guidelines for awarding those funds to students are made in accordance with the EFM principles.

For 2019-20, UC grant recipients will be expected to work for or borrow, on average, about \$10,000 to finance their education. Students can compete for UC scholarships and outside awards that effectively reduce their expected contribution. (During the 2017-18 academic year, 20% of

**UC GRANT ASSISTANCE
UNDER THE EDUCATION FINANCING MODEL**

The Total Cost of Attendance

Minus Grants from federal and state programs

Minus A reasonable contribution from parents

Minus A manageable student contribution from work and borrowing

Equals University grant aid needed

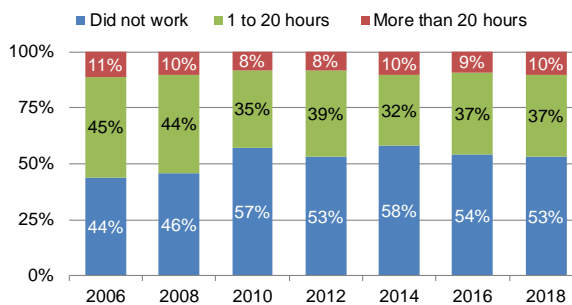
undergraduates received UC scholarships worth \$5,276 on average.)

Outcomes of the Undergraduate Aid Program

The University monitors a variety of outcome measures related to student support to evaluate the effectiveness of its undergraduate financial aid programs. These outcome measures are designed to answer the following questions:

- **Does the University enroll students from all income levels?** The University has achieved remarkable success at enrolling a high percentage of low-income undergraduate students. In fact, during the last period of consistent tuition and fee increases (2008-2011), the proportion of low-income students enrolling at UC increased to match the proportion they represented in the state as a whole (roughly 36%).
- **Do UC students work manageable hours?** The University funds and administers its financial aid programs such that no student is expected to work more than 20 hours per week in order to finance their education. Surveys conducted over time depict similar patterns of work, indicating that increases in UC’s cost of attendance have not significantly affected this outcome measure. Display XVI-6 shows students’ self-reported

Display XVI-6: Trends in Student Work Hours, 2006-2018



University of California Undergraduate Experience Survey figures from 2006 to 2018 show only slight changes in students’ work patterns during this period.

work hours from the University of California Undergraduate Experience Survey (UCUES); periodic UCUES results indicate that the percentage of students working more than 20 hours per week has not increased.

- Do students' financial circumstances affect their academic success?** Despite increases in tuition, fees, and other expenses, trends in student persistence remain stable for students at every income level. In addition, financial considerations do not seem to influence students' ability to graduate from UC. While students from lower-income families take slightly longer, on average, to graduate, their 6-year graduation rate is on par with that of wealthier students who enrolled at UC with similar levels of academic preparation.
- Do students graduate with manageable debt?** Under the EFM, debt that requires between 5% and 9% of a student's annual postgraduate earnings is considered manageable. Among students who borrow, average cumulative debt has changed little during the past few years. Among undergraduate students who graduated in 2017-18, 48% borrowed at some point while enrolled at UC; their average cumulative borrowing at graduation was \$18,595 (\$21,100 for students who were admitted as freshmen), well below the national average of \$28,350.

GRADUATE STUDENT FINANCIAL AID

No State or federal grant programs similar to Cal Grants or Pell Grants exist for covering tuition and fees at the graduate level. For graduate students, the burden of covering increases in the cost of attendance – including increases in tuition and fees – falls upon the University, research and training grants funded by federal and other extramural sources, private foundations, and students. Display XVI-7 contains summary statistics of graduate student financial aid.

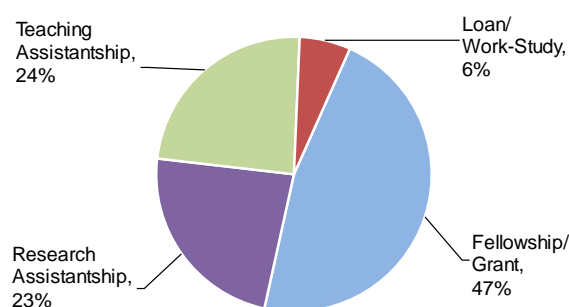
Graduate academic and graduate professional programs differ in a number of ways, including the intended outcomes of the programs, typical program length, and competitive markets for students. Because of these differences, the types of financial support provided to these two groups of graduate students differ greatly. In general, graduate academic students receive more grant aid and traineeships and graduate professional students receive more loans.

As shown in Display XVI-8, in 2017-18, 47% of support for graduate academic students was in the form of fellowships and grants. Graduate academic students also serve as teaching and research assistants and hence receive

Display XVI-7: Graduate Student Financial Aid At-A-Glance, 2017-18

Total Aid	\$2 billion
From gift aid	34%
From loans/work-study	24%
From assistantships	42%
Aid recipients	85%
Gift Aid	
Gift aid recipients	66%
Average gift aid award	\$19,401

Display XVI-8: 2017-18 Graduate Academic Financial Support by Program Type and Aid Type



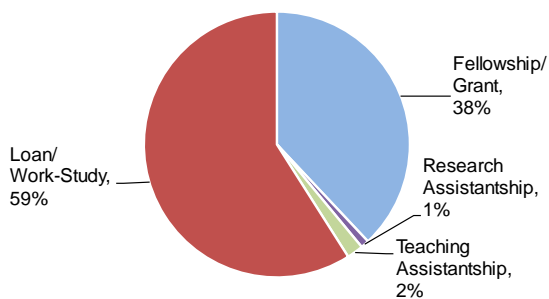
More than 90% of graduate academic financial aid is in the form of fellowships and grants, teaching assistantships, and research assistantships.

substantial funding – about \$466 million in 2017-18 – from extramural faculty research grants and University teaching funds. Fellowship, grant, and assistantship support are viewed as more effective than loans for recruiting and retaining doctoral students whose academic programs are lengthy and whose future income prospects are relatively modest compared to professional degree students. Combined, fellowships, grants, and assistantships represent over 90% of all support received by graduate academic students. In contrast, nearly 60% of the support for graduate professional students in 2017-18 was in the form of student loans and work-study and approximately 40% was in the form of fellowships, grants, and assistantships, as shown in Display XVI-9 on the following page. In 2017-18, the per-capita loan amount for graduate professional students accounted for 58% of their assistance.

Graduate Academic Student Aid

The competitiveness of student support for UC graduate academic students and its impact on the ability of the University to enroll top students from across the world has been a longstanding concern for the University. Top graduate students receive competitive multi-year funding offers from peer institutions, and if the University of California cannot guarantee funding support, the best academic doctoral candidates will likely elect to attend other institutions. Excellent graduate students are needed for undergraduate instruction support and for faculty research.

Display XVI-9: 2017-18 Graduate Professional Financial Support by Program Type and Aid Type



In contrast to graduate academic financial aid, most aid for professional school students is in the form of loans.

Graduate Academic Student Aid

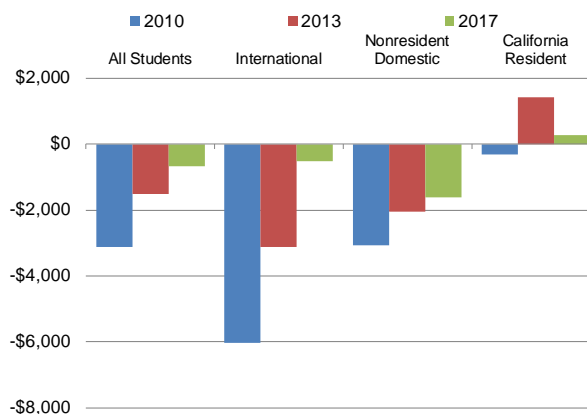
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The University has taken several steps to address the gap between graduate student support demand and supply, including the following:

- The University dedicates 50% of new tuition and fee revenue from graduate academic students to graduate student support. These funds allow the University to cover cost increases associated with UC teaching assistantships and fellowships that cover students' tuition and fees.
- The University has not increased graduate academic Nonresident Supplemental Tuition levels since 2004-05. The foregone revenue is seen as a worthwhile trade-off in order to avoid further demands on limited fellowship and research assistantship funding. In effect, this practice has reduced, in real terms, the costs associated with covering Nonresident Supplemental Tuition for out-of-state and international graduate academic students.
- The University has reduced costs for academic doctoral candidates. Effective in fall 2006, graduate doctoral students who advance to candidacy are exempt from paying Nonresident Supplemental Tuition for three years. This practice provides an incentive for these students to complete their dissertation work promptly and reduces the burden on research grants and other fund sources that are often used to fund this cost as part of a student's financial support package.

Since 2004, surveys of students admitted to the University's academic doctoral programs have repeatedly shown that UC's offers of financial support are, on average, less than the offers students receive from competing institutions.

Display XVI-10: Competitiveness of UC Financial Support Offers to Academic Doctoral Students



Data from 2010 to 2017 show an overall decline in the difference between UC's financial support offers to academic doctoral students and the offers students received from competing institutions. UC's offers remain competitive for California residents, although less so in 2017 than in 2013.

Recent surveys suggest that efforts such as those described above have begun to narrow that gap, as shown in Display XVI-10. While UC remains less competitive than other institutions on average – and especially for international and domestic nonresident students – the difference between UC and non-UC offers has diminished over time. These findings indicate progress in this important metric of graduate student support, along with the need for continued investment in the University's ability to recruit highly talented students in a very competitive environment.

Professional School Student Aid

The Regents' Policy on Professional Degree Supplemental Tuition³ (PDST) stipulates that graduate professional degree programs are expected to supplement financial aid resources by an amount equivalent to at least 33% of new Professional Degree Supplemental Tuition revenue, or to maintain a base level of financial aid equivalent to at least 33% of total Professional Degree Supplemental Tuition revenue. The policy has been amended in recent years to include specific conditions for ensuring that the University's commitments to access, affordability, diversity, and students' public service career decisions are not adversely affected by PDST increases.

The University sets aside less return-to-aid funding from Tuition and Student Services Fees for professional school students (33%) than for graduate academic students (50%). In addition to this return-to-aid set aside for the neediest graduate students, graduate degree programs use the return-to-aid set aside from PDST revenue, as well as funding from philanthropic sources, to pursue their affordability goals. Nearly two-thirds of financial support awarded to graduate professional degree students is in the form of loans, primarily from federal loan programs. A greater reliance on loans and a smaller return-to-aid percentage are appropriate for professional school students because their programs are shorter and their incomes after graduation tend to be higher than those of graduate academic students.

University funds are also used for loan repayment assistance programs (LRAPs) in certain disciplines. These

programs acknowledge that students who choose careers in the public interest often forego higher incomes and, hence, may be less able to meet their debt repayment obligations. Other LRAPs are funded at the federal, state, or regional level to encourage students to serve specific populations (e.g., to work as a physician in a medically underserved area). In recent years, every UC law school has significantly expanded its LRAP to provide a higher level of debt repayment relief to a broader population of graduates. Other professional schools are continuing to evaluate the appropriate mix of loan assistance and fellowship support to ensure that public interest careers remain a viable choice for their graduates.

Since 2009-10, students have been able to avail themselves of income-driven repayment plans for federal student loans, which are designed to make loan repayments easier for students who take jobs with lower salaries. The amount of debt repayment is determined not by the loan amount but by the borrower's discretionary income, and repayment will never exceed 15% of net disposable income.

OTHER FINANCIAL ASSISTANCE

The federal government and the State provide a number of vehicles to help finance a college education, which include the following:

Cal Vet Fee Exemptions. Consistent with provisions of the California Education Code, by University policy, dependents of veterans whose death or disability was service-connected are generally eligible for exemption from mandatory systemwide fees. In 2017-18, over 3,600 UC students made use of such exemptions, worth a total of \$46 million.

AB 540 Tuition Exemption. Consistent with Section 68130.5 of the California Education Code and University policy, certain nonresident students⁴ who meet a series of time and/or unit and/or graduation requirements from enrollment at some combination of elementary or secondary schools or community colleges in California may be eligible for exemption from Nonresident Supplemental Tuition at UC. Undocumented students receiving an AB 540

³ See <https://regents.universityofcalifornia.edu/governance/policies/3103.html>.

⁴ For details, see <http://admission.universityofcalifornia.edu/paying-for-uc/tuition-and-cost/ab540/index.html>.

Nonresident Supplemental Tuition Exemption may also be considered for State and University financial aid.

Federal Tax Credits. The Taxpayer Relief Act of 1997 established two tax credit programs, the Hope Tax Credit and the Lifetime Learning Tax Credit, designed to provide tax credits to qualified taxpayers for tuition and fees paid for postsecondary education. Under the American Recovery and Reinvestment Act of 2009, the Hope Tax Credit was expanded and renamed the American Opportunity Tax Credit (AOTC). The AOTC's key enhancements include an increase in the maximum credit from \$1,800 to \$2,500; an increase in the income ceiling from \$116,000 to \$180,000 for married filers; and an increase in the length of eligibility from two to four years of education. The Lifetime Learning Tax Credit provides smaller tax credits, and taxpayers are not limited to payments made during the first four years. These tax credit programs generally benefit students from middle-income families. While the total value of higher education tax credits available to UC students and their families is not known, it was estimated to exceed \$130 million for tax year 2018.

Scholarshare Trust College Savings Program. This tax-exempt college savings program administered by the California State Treasurer encourages families to save for college expenses.

Penalty-Free IRA Withdrawals. Taxpayers may withdraw funds penalty-free from either a traditional Individual Retirement Account (IRA) or a Roth IRA for postsecondary education expenses. This provision is intended to assist middle-income families.

Coverdell Education Savings Account. The Economic Growth and Tax Relief Reconciliation Act of 2001 established the Coverdell Education Savings Account (ESA) to replace the Education IRA and assist middle-income families. Although contributions are not tax-deductible, earnings on the ESA are tax-free and no taxes are due upon withdrawal if used for qualified higher education expenses.

U.S. Savings Bonds. The interest on U.S. savings bonds is, under certain circumstances, tax-free when bond proceeds are used to cover education expenses. Eligibility is a function of income level when the bond is redeemed, as the bond is intended to assist middle-income families.

Student Loan Interest Deduction. Borrowers may take a tax deduction for interest paid on student loans. Middle- and lower-middle-income borrowers with high debt are the primary beneficiaries of this deduction.

Loan Repayment Assistance Programs. Loan repayment assistance programs (LRAPs), loan assumption programs, and loan forgiveness programs are available to graduates who enter certain professions or who serve specific populations after graduation.

Veterans Education Benefits. Several federal programs provide financial assistance to help veterans and their dependents finance a college education. In particular, the newly enacted GI Bill provides eligible veterans attending UC with an amount equivalent to what is charged to in-state residents for tuition and fees.

Auxiliary Enterprises

Auxiliary enterprises are essentially self-supporting activities; however, they are not required to be entirely self-supporting. Chancellors may subsidize auxiliary enterprises with appropriate available campus funds. Auxiliary enterprises are activities that provide non-instructional support in the form of goods and services to students, faculty, staff and other individuals upon payment of a specific user charge or fee. Student and faculty housing, dining services, and campus bookstores are the largest auxiliaries, with parking and some intercollegiate athletics making up the remaining components. Certain activities may be considered hybrid auxiliaries since the activities include characteristics of both student services and fees collected. For hybrid auxiliaries, the campus chancellors have discretion over the source of funds that will be used for direct and indirect costs of activities. Auxiliary enterprises expenditures totaled \$1.3 billion in 2018-19 (see Display XVII-1).

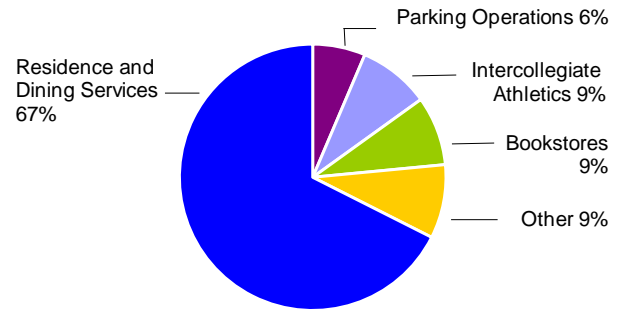
Auxiliary enterprises, as all functional areas of the University, have sought to reduce costs through increased efficiencies in administration and operations. Savings achieved in these programs are necessary to meet higher assessments being charged to auxiliaries for campus-wide operating costs and to cover rising mandated cost increases.

STUDENT, FACULTY, AND STAFF HOUSING

UC's largest auxiliary enterprise is student housing, comprising 85,426 University-owned residence hall and single student bed spaces and 14,681 student family apartments, for a total of 100,107 spaces in fall 2019 (see Display XVII-2).

Affordable student housing is an important component of the University's ability to offer a high-quality education and residential life experience. Campus housing is also important in addressing the University's sustainability goals and long-range planning targets. Rapid enrollment growth over the last decade has presented the University with many challenges; creating affordable, accessible student housing to accommodate this growth has been high among

Display XVII-1: 2018-19 Auxiliary Enterprises Expenditures by Service Type (Total: \$1.3 Billion)



Residence and dining services account for over two-thirds of the expenditures by auxiliary enterprises.

Display XVII-2: Auxiliary Enterprises At-A-Glance, 2018-19

Student Housing:	
Single student residence bed spaces	85,426
Student family apartments	14,681
Student housing occupancy rate	106%
Faculty Housing:	
Faculty rental housing units	1,360
Mortgage loans provided	8,822
Faculty provided housing assistance	7,994
Parking:	
Parking spaces	134,149

those challenges. In accommodating demand, campuses have identified guaranteed housing for freshmen as one of their highest priorities. Providing additional housing options for transfer and graduate students is also of high importance. Even though the University has been better prepared in the last couple of years to meet the housing demand of students than in previous years, some campus residence halls continue to be occupied at over 100% design capacity. In 2018-19, the systemwide occupancy rate was 106%. Campuses have been accommodating more students by converting doubles to triples, as well as modifying study areas into temporary quarters. Campuses continue to offer housing to all freshmen who meet enrollment and housing application deadlines.

HOUSING INITIATIVE

In January 2016, President Napolitano announced a Student Housing Initiative aimed at supporting current students and future enrollment growth across the UC System. The initiative established a goal of providing 14,000 new beds by fall 2020. This goal includes the creation of new beds in residence halls and apartments to support both undergraduates and graduate students. Overarching goals are to ensure that each of UC's campuses has sufficient housing for its growing student population and that housing is kept as affordable as possible for students.

Since the announcement of the initiative, the University has added over 8,000 beds to the housing stock through the construction of new housing. In fall 2019, five additional housing projects opened to add an additional 3,000 beds. UC is currently on track to meet the goal of providing 14,000 new beds by fall 2020, with more planned to come online in the years thereafter.

The California housing market is a continuing deterrent to UC's faculty recruitment efforts, particularly for junior faculty. Adding faculty and staff housing units continues to be a high priority. Beginning in 1978, the University has conducted multiple surveys to better understand the prior housing situation, and the current needs and preferences of new faculty hires. As a result of these surveys, various programs have been implemented to help alleviate faculty concerns about housing. Examples include:

- Rental housing units are made available to newly appointed faculty according to criteria established by each campus. These units are self-supporting without subsidy from student rental income.
- The University of California Employee Housing Assistance Program provides mortgage loans to full-time faculty members and other designated employee classes. The available loan products have favorable interest rates, no lender points or fees, and low down payment requirements. The participants must use the property securing the loan as their primary residence, and the loan documents contain a condition of employment provision that requires repayment of the loan in the event the participant leaves the University.
- The Faculty Recruitment Allowance Program provides grants to faculty members to assist with housing-related costs. The Recruitment Allowance can be paid as a lump sum or over a period of up to ten years. The program is

limited to eligible participants who are within two years of their qualifying appointment.

- Five campuses have developed for-sale housing on land owned by the University. Approximately 1,400 homes have been sold to faculty and other eligible participants subject to a long-term ground lease. Affordability of these homes is maintained by restricting the maximum sales price at the time of resale.

BOOKSTORES

The mission and vision of University bookstores is to provide quality products, services and technologies that ensure academic success, promote campus pride, and respond proactively to issues of environmental sustainability.

Six campuses (Davis, Los Angeles, Merced, San Diego, Santa Barbara, and Santa Cruz) operate University-managed bookstores. These bookstores provide a broad selection of general books, textbooks, computer products, supplies, insignia apparel and souvenirs, sporting goods, dormitory and apartment living supplies, groceries, and a variety of other products. As independent and self-supporting divisions of Student Affairs or Business Services, the financial contributions from these campus-owned bookstores benefit student services and programs.

The Berkeley, Irvine, and Riverside campuses contract the management of their bookstores to private operators; and the San Francisco campus provides textbooks and reference material through an online UCSF-specific vendor since closing its campus bookstore in 2011.

Although each campus bookstore serves the unique needs of the campus within the context of the local marketplace, there are common trends among UC bookstores and their counterparts serving other research universities, including:

- Mandatory costs that are increasing at a rate greater than total revenue continue to put a strain on operations.
- Textbook sales traditionally comprised of both new and used titles now include custom content textbooks, digital textbooks or eBooks, custom course packs, loose-leaf versions, and adaptive digital content. Adaptive digital content, also known as digital media content, is often priced 50-75% below the print equivalent. Licensing models are being developed at several campus bookstores to take advantage of this superior and much sought-after content.

- The total revenue from the sale of course materials content has declined and the sales of computer products (the tools to access that content) have leveled off as the much-coveted Educational Pricing – now available at Apple Computer stores as well as campus bookstores – has made these products more affordable to students. Students receive reduced pricing once they prove their eligibility.
- New product categories are being introduced to add value to the quality of campus life. Revenue from dormitory supplies, including microwaves, refrigerators, sheets, towels, and bedding has increased in the last couple of years and has helped offset the continued decline in textbook and general book sales.
- New services such as passport application processing and textbook rentals are growing sources of revenue.
- Growth in revenues from online sales continues.

Textbooks are an important factor students need to consider when calculating the overall cost of attending college. To offset high textbook prices, students can rent and share peer-to-peer exchange textbooks online. In addition, the open source model allows faculty to personally adapt and publish course material that students can access for free or for a nominal cost.

PARKING

UC's parking program is another major auxiliary, with 134,149 spaces in 2019 for students, faculty, staff, and visitors. Campuses have successfully encouraged students, faculty, and staff through their Transportation Demand Management (TDM) programs to commute to campus via alternative modes. Alternative mode commuting reduces vehicle trips, parking demand, and greenhouse gas emissions. In support of the UC Policy on Sustainable

Practices and in conformance with campus Long-Range Development Plan Environmental Impact Reports (EIRs), all campuses have implemented extensive TDM programs, including carpools, vanpools, shuttles, transit pass subsidies, carshare vehicles, and similar initiatives. Campus Long-Range Development Plan EIRs require mitigation of University-created traffic impacts; thus, the more the campus population commutes via alternative transportation modes, the less impact on off-campus intersections and roadways can be attributed to UC, and the less obligation UC has to contribute toward off-campus transportation improvements. TDM programs are funded, in part, by parking revenues; as TDM participation increases, therefore, parking revenue decreases, creating a challenge to continue and expand TDM programs. Lastly, the parking programs are installing and increasing the number of electric vehicle charging stations to both serve campus permit holders who already have electric vehicles and to encourage the use and/or purchase of electric vehicles.

INTERCOLLEGIATE ATHLETICS

Most UC campuses operate recreation and intercollegiate athletics programs exclusively as student services. Athletic programs at certain campuses may be considered hybrid auxiliaries. The Berkeley and Los Angeles campuses – both campuses with large intercollegiate sports programs – operate a portion of their recreational and intercollegiate athletics programs as auxiliary enterprises with revenue generated from ticket sales, concessions, and other sources. The San Francisco campus also runs its recreational facilities and programs as self-supporting auxiliary enterprises, with modest subsidies from Student Services Fee revenue.

Provisions for Allocation

Provisions for allocation serve as a temporary repository for certain funds until final allocation decisions are made. For instance, funds allocated for across-the-board cost increases, such as salary adjustments, employee benefit increases, and price increases that occur in most program areas, may be held in provision accounts pending final allocation. Such cost increases are discussed in the *Compensation, Employee and Retirement Benefits, and Non-Salary Cost Increases* chapter of this document. Provisions for allocation also include negative appropriations, e.g., undesignated reductions in State General Fund budgets awaiting allocation decisions or budgetary savings targets.

The 2013-14 Budget Act provided for the transfer of \$200.4 million to UC's base budget to cover State General Obligation Bond debt service related to University capital projects. The portion of the University's appropriation that is annually required for debt service is, in effect, a pass-through that is not available for UC's operating needs. However, including the amount in the University's base budget increases the base from which future budget adjustments are calculated. For 2018-19, a total of \$301.8 million in the Provisions for Allocations included in the Governor's Budget accounts for the following: \$181.6 million for General Obligation Bond actual debt service payment, \$120.2 million for Lease Purchase actual debt service payment, and \$5.3 million for UCRS Deferred payment received from the State.

Compensation, Employee and Retirement Benefits, and Non-Salary Cost Increases

The University of California is a people-driven institution. Consequently, employee salaries and benefits represent the single largest category of expenses for the University, as it does for other knowledge and service based organizations. Increased salary costs are largely driven by the need to hire and retain faculty and staff at market-competitive rates that fairly compensate them for their services. Benefits and other non-salary increases are driven by inflation and price increases imposed by providers. To a large extent, adjustments to the University's budget reflect these rising costs of doing business, rather than initiation of new programs.

Display XIX-1: Compensation and Benefits At-A-Glance, 2019-20

Number of Employees as of April 2019 (base FTE)	
Academic	48,244
Professional/Support Staff	103,660
Managers/Senior Professionals	14,820
Senior Management	161
Total	166,885
Salaries and Wages	\$16.5 billion
Employee Health Benefits	\$1.8 billion
UC Retirement Plan as of July 2019*	
Active members (Headcount)	125,578
Normal Cost	\$2.4 billion
Retirees and survivors	65,863
Benefits payout for 2018-19	\$3.0 billion
Annuitant Health Benefits*	
Retirees and family members (Headcount)	67,688
Projected Cost for 2018-19	\$335 million

* For campuses and medical centers (excludes DOE Labs).

COMPENSATION FOR ACADEMIC AND STAFF EMPLOYEES

The University's annual budget plan typically includes funding for compensation adjustments for eligible employees paid from core funds. Compensation increases for employees funded from other fund sources – including teaching hospital income, auxiliary enterprises, federal funds, and other sources – are expected to be accommodated from within those fund sources and to

COMPONENTS OF THE COMPENSATION BUDGET

Academic Merit increases recognize and reward relative levels of performance and contribution, and are critical to the preservation of the quality of the University and to reinforce a pay for performance philosophy. Merit salary increases for faculty and other academic employees provide a reward mechanism to recognize the quality and effectiveness of teaching and research, and enable the University to compete with other major research universities in offering long-term career opportunities. Merit increases are never automatic and are based on demonstrated contributions.

Contractual Wage Increases are established through collective bargaining agreements.

General Compensation Increases:

- **Merit-based/General Salary Program Increases** help the University to compete with other universities for talent and reward employees based on their performance and contribution to the University.
- **General range adjustments** for eligible employees reflect changes in the cost of labor.
- **Market and equity adjustments** help bring individual salaries to a competitive market level for individual employees in jobs with significant external market gaps and/or internal equity issues, or address recruitment and retention challenges.

Other Compensation Related Items:

- **Pension Contribution Increases** are paid by both the employer and the employee.
- **Health and Welfare Benefit Cost Increases** are paid by both the employer and employee, driven by rates negotiated with UC's health plan providers.
- **Retiree Health Cost Increases** are needed to cover similar cost increases in health benefits for annuitants.

conform to the University's established systemwide salary programs for core-funded employees.

In 2009, a study of UC's total compensation program indicated that, in general, average UC salaries were substantially below the market median, but the total compensation package, including salary and health and welfare benefits for employees, as well as post-employment benefits (pension and retiree health), helped make up some of the shortfall. A 2014 update to this study, however, which focused on ladder rank faculty, indicated that the value of

benefits had decreased to such an extent that total remuneration for faculty was 10% behind market and cash compensation was lagging by nearly 12%.

The value of the benefit package has decreased as employee contributions to the UC Retirement Plan have risen to 7%, 8%, or 9% of salary, depending on UCRP member tier, to ensure the solvency of the retirement program. In addition, inflationary increases for health benefit costs have required employees to contribute a larger share toward their medical premiums.

Faculty Salary Gap

To evaluate its market position, UC compares its faculty salaries with eight peer institutions. Due to State budget cuts during the early 2000s, UC's average faculty salaries declined from parity with these comparators to a 9.6% lag by 2006-07. In 2007-08, the University instituted a four-year plan to eliminate the lag and return faculty salaries to market levels, and after one year of the plan, the faculty salary gap was reduced to 7.1%. However, the State's ongoing fiscal crisis prevented continuation of this plan, and the gap widened to 12.8% by 2010-11. Subsequently, this gap has narrowed to 7.5% in 2018-19 as the University has been able to fund annual general increases for faculty. The 2019-20 academic salary program includes a 3% general range adjustment for non-represented academic appointees and an additional 1% special salary plan for a total annual rate increase of 4% for ladder rank faculty.

While the merit and promotion system for academic employees has been maintained, estimated at an incremental annual cost of about \$33.9 million, the University is concerned about the effects of the salary lag and reduced health and welfare, pension, and annuitant health benefits on faculty recruitment and retention, particularly for UC's promising junior faculty who are often supporting young families in high-cost environments. As endowments at private institutions recoup their losses and other states stabilize funding for public institutions, it is expected that those institutions will rapidly move to restore academic programs by recruiting faculty away from other universities. A 2016 study showed that among faculty members who left UC for another institution, salary was the most often cited reason.

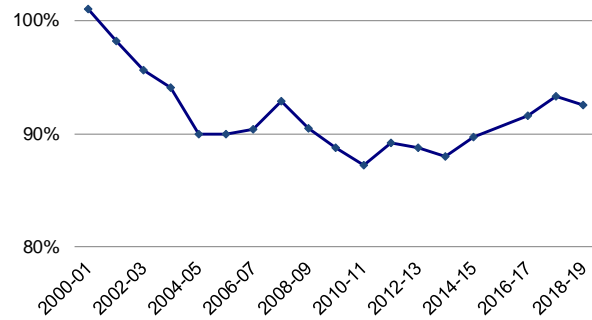
UC already finds itself struggling to retain its own high-quality faculty. Recruiting and hiring faculty to fill a vacancy can exceed \$500,000 for an Assistant Professor and \$1 million for a tenured associate or full professor. Additionally, recruitment of new faculty, which substantially slowed during the recent fiscal crisis, has improved but remains a concern in the face of increasing student enrollments and sizable faculty retirements. Salary lags pose challenges to attracting the best faculty candidates, and there is a reputational cost associated with an inability to adequately compensate faculty.

Staff Salary Gap

Staff salaries in most workforce segments present a similar competitive market problem for the University. UC was unable to provide salary increases in three out of the ten years since 2008-09, as noted in Display XIX-3. Market salaries over the period have been increasing at approximately 2.9% per year, but UC staff salary increases have not kept pace at approximately 2.1%. Detailed information about the limited and sporadic adjustments to non-represented staff salaries since 2000 is provided in the highlighted section titled "Recent History of Salary Increases for Non-Represented Staff." The UC system competes to retain and hire well qualified leadership talent with the top public and private universities in the country, as well as other employers in the local labor market. While the University does not have the same financial resources that private universities have, it nonetheless competes with them for talented academics and leaders. Many top public research universities compensate their staff (as well as faculty) more highly than UC. The University must pay competitive wages in order to maintain its position as a top ranked institution of higher education.

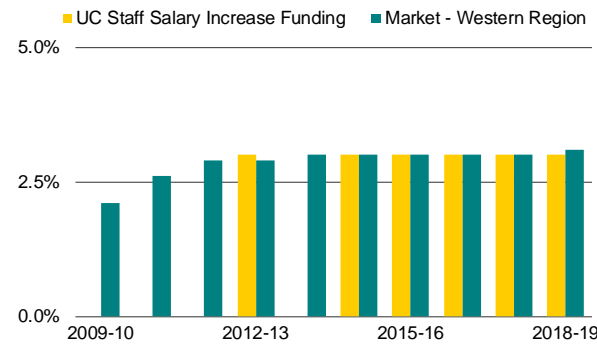
That can be a challenge, however, when other universities are offering more than the UC system. The labor market is no different from other markets for goods and services. As the demand for experienced leaders has grown over the last decade or so, compensation costs of these leaders also has increased. UC needs high-performing employees at all levels, including senior leadership, to continue UC's success into the future. In order to attract and retain these employees, UC needs to have predictable, fair, and competitive compensation programs.

Display XIX-2: Ladder Rank Faculty Salaries as a Percentage of Market



Due to funding constraints, the University has struggled to bring faculty salaries to par with comparators. In 2018-19, UC's faculty salaries were 7.5% below market.

Display XIX-3: Increases in Funding for Staff Salaries Compared to Market



In three of the last ten years, UC was unable to provide increases in staff salaries, resulting in significant market disparities. (Source: World at Work Annual Salary Budget Survey, which represents data from over 1,000 employers from all sectors in the western United States.)

Illustrating UC's staff compensation gap problem is the total compensation of UC chancellors. The average compensation for this group lags behind that of other public and private Association of American Universities (AAU) institutions' by 53%. Among their peers at other public members of the AAU, compensation for UC chancellors trails by 37%, falling in the bottom third, despite the size, complexity, and stature of UC.

For the last five years the University has been able to provide modest salary increases to non-represented staff due in part to increases in the State budget. In addition to helping to restore staff morale, these actions also assist the University's efforts to retain skilled, experienced

2014 TOTAL REMUNERATION STUDY

Past cuts to the University's budget have resulted in disparities in faculty and staff salaries compared to the market. To determine how these disparities have changed since they were last evaluated, former President Yudof commissioned a total remuneration study in July 2013 for general campus ladder rank faculty. Prohibitive costs prevented a study of all employee categories. The purpose of the study was to evaluate the University's current position for total remuneration compared to the market and to determine the impact of the 2013 Tier post-employment benefits on total remuneration. (Currently, UC employees who are members of UCRP are governed by the 1976 Tier, 2013 Tier, or 2016 Tier plan provisions.)

The study found that salaries for UC's ladder rank faculty lag market by 12% across all pooled ranks; health and welfare benefits are 7% below market; total retirement packages (including the defined benefit plan and retiree health plan) are 6% above market; and UC's total remuneration position is 10% below market, due primarily to non-competitive salaries.

The study also compared UC's competitive position in 2009 (when the last total remuneration study was undertaken) and 2014. The findings about UC's changing competitive position were of particular concern because they identified longer term trends in UC's competitiveness relative to its principal comparator institutions.

The major findings included the following: UC's position with respect to total remuneration fell 8% between 2009 and 2014, from 2% below market to 10% below market; salaries fell from 10% below market to 12% below market; health and welfare benefits declined from 6% above to 7% below; changes to UC's retirement plans since 2009 based on the 2013 Tier have reduced UC's positioning against the market from 29% above market to 2% below market; total retirement decreased from 33% above market to 6% above market; and total benefits decreased from 18% above market to 1% below market.

The study found that the total remuneration mix changed substantially between 2009 and 2014. In 2009, salaries and benefits represented 68% and 32% of total remuneration, respectively. In 2014, salaries increased by 10% (to 78%) of total remuneration and benefits decreased by 10% (to 22%), underscoring the need for competitive salaries to address further erosion of UC's market position. Other staff salaries in most workforce categories exhibit similar downward trends. The University is concerned about UC's competitiveness with respect to compensation and the widening gap between funds available for compensation and the resources needed to fund competitive salaries.

employees. These increases have started to address the lack of salary increases during 2008-09, 2009-10, 2010-11, and 2012-13. Represented staff have received contractually negotiated salary increases on schedule.

RECENT HISTORY OF SALARY INCREASES FOR NON-REPRESENTED STAFF

2001-02 and 2002-03: Staff salary increases were lower than planned because of limited State funding.

2003-04 and 2004-05: The University instituted additional internal budget cuts in order to fund academic merit increases for faculty, but no employees received a general range adjustment and staff employees received no merit increases.

2005-06 through 2007-08: The Compact with the Governor provided funding for academic and staff salary increases.

2008-09 through 2010-11: Due to budget shortfalls, general salary increases were not provided to faculty or staff. However, the University continued to fund faculty merit increases by redirecting funds from existing resources.

2009-10: The Regents approved a one-year salary reduction/furlough plan effective September 1, 2009 to August 31, 2010. The plan instituted a tiered system of furloughs and pay reductions, based on employee pay; employees were furloughed from 10 to 26 days per year, with the lowest paid employees (up to \$40,000) subject to the fewest furlough days. Pay reductions ranged from 4% to 10% per year for employees. The plan is estimated to have saved \$136 million in General Funds to help address the State funding shortfall and \$236 million from all fund sources.

2011-12: For the first time since 2007-08, non-represented staff were eligible for merit salary increases (excludes Senior Management earning over \$200,000 per year).

2012-13: No salary increases were given to non-represented staff.

2013-14: General salary increases of 2% for academic personnel and 3% for non-represented staff were implemented.

2014-15: General salary increases of 3% for non-represented staff and academic personnel were implemented.

2015-16 through 2018-19: Merit-based salary increases averaging 3% for non-represented staff and academic personnel were implemented.

EMPLOYEE HEALTH AND WELFARE BENEFITS

As part of the total compensation package for faculty and staff, the University seeks to provide competitive health and

welfare benefits including medical, dental, vision, basic disability and life coverage. UC offers a range of medical plans to meet the varying needs of its employees, including HMOs for employees wanting predictable out of pocket costs, PPOs for those who prioritize choice of providers, and a Health Savings Plan that provides members with more financial control. For additional protection from adverse life events, employees may purchase optional voluntary disability, supplemental life, accidental death and legal insurance. Depending upon appointment type, the University may pay on average 35% to 40% of an employee's annual base salary in employer benefits.

The University continues its commitment to manage healthcare expenses despite health costs that are growing faster than the US economy and the uncertain future of the Affordable Care Act. To strengthen efforts on managing costs, UC Health and Human Resources created an innovative partnership, leveraging the University's capabilities as both provider and payer of health care to improve health outcomes while maintaining costs. These strategies include:

- Self-funding all PPO plans, including the Health Savings Plan.
- Providing incentives for employees and retirees to seek care at the world-renowned UC Medical Centers through a tiered benefit structure.
- Creating risk-sharing arrangements between UC Medical Centers and health plan administrators. By forming Accountable Care Organizations, UC health care providers assume some of the financial risk for their patients' care, encouraging them to create the most effective and cost-efficient care delivery systems and ensuring the best health outcome for patients.
- Strengthening disease management programs to improve the health of the UC population across the system and for early detection of at-risk candidates, further controlling costs over time.

This leading-edge approach, forging new collaboration between UC's health care providers and the benefits management team, is designed to improve patients' experiences and health outcomes while limiting cost escalation.

Additional strategies are being employed to help control benefits costs. A request for proposals (RFP) was issued for the Blue & Gold health maintenance organization (HMO) in 2017 for launch in 2019. Similarly, an RFP was issued for

dental plans in 2018 for launch in 2019. These actions helped to ensure that UC secured the best-in-class plan.

Additional strategies are being employed to help control benefits costs. A request for proposals (RFP) was issued for the Blue & Gold health maintenance organization (HMO) in 2017 for launch in 2019. Similarly, an RFP was issued for dental plans in 2018 for launch in 2019. These actions helped to ensure that UC secured the best-in-class plan administration which will provide members with strong customer service at a reasonable costs.

The University, through its Human Resources Compliance unit, continues the Family Member Eligibility Verification review for health benefits, ensuring that only those eligible for coverage by University benefits were enrolled in UC-funded plans. The annualized savings from this ongoing effort is approximately \$8 million.

For 2019, the UC faculty and staff medical program cost increase will be held at 4.1% over 2018. The University will fund \$1.6 billion of the \$1.9 billion total cost of employee medical benefits. Furthermore, no increases to active employee vision premiums and slight decreases on the dental plans result in an overall health benefit package budget increase of 3.5%.

The 3.5% increase in the 2019 UC health program contribution is lower than the national trend: two surveys of large employers show health care costs are expected to rise by 4– 5% in 2019¹.

UC's progressive medical premium rate structure is designed to help offset the impact of the employee's share of the medical plan premiums on lower-paid employees. UC pays approximately 86% of medical premiums for employees on an aggregate basis, and has made a strategic decision to cover an even larger portion of the premium for those in lower salary brackets.

Despite the University's extensive efforts to stabilize benefits expenses, UC expects the upward trend of health care costs will continue due to external factors outside of the control of UC. It is anticipated that in coming years,

there will be a need to pass along a greater share of rising costs to employees through increased premiums.

RETIREMENT BENEFITS

Pension Benefits

The University of California Retirement Plan (UCRP) is a governmental defined benefit plan that provides pension benefits for more than 65,000 retirees and survivors and has more than 125,000 active employee members as of July 1, 2019². UCRP promotes recruitment of talented individuals and provides incentives for long careers with UC. Because UCRP provides guaranteed benefits, career faculty and staff gain income security over the span of their retirement years. UCRP disbursed \$3.8 billion in retirement benefits in 2018-19.

Employer and Member Contributions

Prior to November 1990, contributions to UCRP were required from all employer fund sources and from employees (members). In the early 1990s, the Regents suspended University and member contributions to UCRP after actuaries determined that UCRP was adequately funded to provide benefits for many years into the future. The University estimates that in the nearly 20 years during

SALARY VERSUS TOTAL COMPENSATION

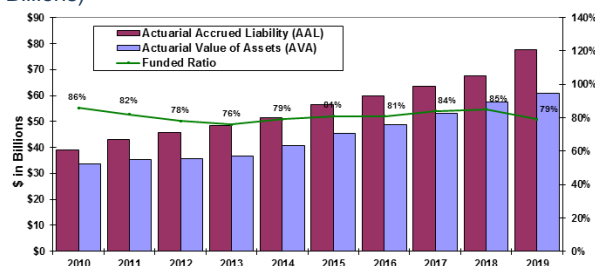
Job seekers often focus on salary to determine where to apply for employment. Salaries are the largest component of a compensation package and job seekers are not necessarily aware of the value of the benefits the University offers. If salaries are too low, job seekers may not even consider the total compensation package and apply elsewhere. In order to attract quality faculty and staff, the University cannot rely solely on its benefits package and must offer competitive salaries as well.

The University's goal is to offer a total compensation package that is competitive with the market. However, due to the rising costs of health and retirement benefits, and the increasing costs to employees, the value of the University's compensation package is diminishing. As these costs continue to rise, the University will experience greater difficulty recruiting and retaining high-quality faculty and staff, particularly if salaries are not competitive.

¹ 2019 Milliman Medical Index and Willis Towers Watson 23rd Annual Best Practices in Health Care Employer Survey

² For campuses and medical centers (excludes DOE Labs).

Display XIX-4: UCRP Historical Funded Status (Dollars in Billions)



The UC Retirement Plan funded percentage reached 79% on an actuarial value of assets (AVA) basis by July 2019.

which employer contributions were not required (employer and member contributions were re-started in April 2010), the State saved over \$2 billion in contributions for those UCRP members whose salaries were State-funded.

The total cessation of contributions, which was desirable at the time for a variety of reasons, has created a serious problem today. For almost 20 years, faculty and staff continued to earn additional benefits as they accumulated UCRP service credit, yet no funds were collected from the various fund sources that were supporting member salaries and invested in UCRP to offset the annual increase in liabilities. Plan liabilities currently increase by \$2.0 billion (20% of covered payroll) annually as active members earn an additional year of UCRP service credit.

Due to both increasing liability and prior turmoil in financial markets, the actuarial-funded ratio of UCRP for all locations, excluding DOE labs, fell from 156% in July 2000 to 79% in July 2019. The accrued liability exceeds the actuarial value of assets by \$16.0 billion. The extent to which this unfunded liability grows depends on future investment returns, as well as employer and member contributions to UCRP and changes in plan provisions.

The 2009-10 Governor’s Budget acknowledged the need to provide \$96 million for its share of employer contributions (covering employees funded from State funds and student fees), representing a rate of 4% to begin on July 1, 2009, rather than the proposed 9.5% employer rate. However, the Governor’s budget proposal reduced this amount to \$20 million, and ultimately no funding for this purpose was included in the final budget act.

Transfers to UCRP

- April 2011:** \$1.1 billion from the UC Short Term Investment Pool (STIP)
- July 2011:** \$935 million from external borrowing through the issuance of a variable rate general corporate bond
- July 2014:** \$700 million from STIP
- December 2015:** \$564 million from STIP
- 2015-16:** \$96 million from Proposition 2 funding
- July – December 2016:** \$481 million from STIP
- 2016-17:** \$171 million from Proposition 2 funding
- 2017-18:** \$169 million from Proposition 2 funding
- July – December 2017:** \$392 million from STIP
- 2018-19:** \$500 million from STIP
- Future transfers authorized (from STIP):**
 - 2019-20:** \$500 million
 - 2020-21:** \$600 million
 - 2021-22:** \$700 million

Display XIX-5: Employer and Employee UCRP Contribution Rates¹

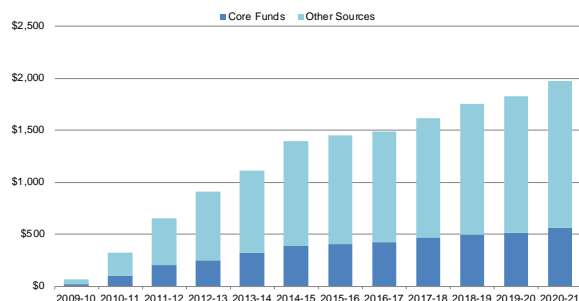
	Employer UCRP	STIP Note/ Bond Debt ²	Most Members UCRP
2010-11	4.00%	0.00%	2.00%
2011-12	7.00%	0.07%	3.50%
2012-13	10.00%	0.63%	5.00%
2013-14	12.00%	0.65%	6.50% ³
2014-15	14.00%	0.72%	8.00%
2015-16	14.00%	0.60%	8.00%
2016-17	14.00%	1.15%	8.00%
2017-18	14.00%	1.27%	8.00%
2018-19	14.00%	1.70%	8.00%
2019-20	14.00%	2.42%	8.00%

¹ Measured as a percentage of base pay. Member contribution amounts are pretax and less \$19 per month. Member contributions are subject to collective bargaining agreements. Contributions were resumed in April 2010 at the 2010-11 rates.

² Payroll assessment to cover the principal and interest on the STIP note and bond debt used to stop further increases in the unfunded liability for UCRP.

³ Member contributions for employees hired on or after July 1, 2013 (in the 2013 and 2016 tiers) will be 7% with no \$19 per month offset.

Display XIX-6: Actual and Projected Employer Contributions to UCRP and Savings Choice by Fund Source (Dollars in Millions)



Employer contributions to UCRP restarted in April 2010. Contribution rates to retirement plans for 2019-20 are 14% of employee compensation on behalf of UCRP and Savings Choice members (for whom 6% goes to UCRP and 8% goes to participant accounts). Core-funded programs contributed \$559 million to UCRP in 2019-20. Other fund sources contributed the remaining \$1.9 billion.

The University restarted employer and member contributions in April 2010, with an employer contribution of 4% and contributions from most members of 2% for the period from April 2010 through the 2010-11 fiscal year. The State's share was funded by redirecting resources from existing programs.

In September 2010, the Regents approved increases to both employer and member contributions for 2011-12 and 2012-13. Employer contributions rose from 4% in 2010-11 to 7% for 2011-12, to 10% for 2012-13, to 12% for 2013-14, and to 14% effective July 1, 2014. Contributions for most members rose from approximately 2% in 2010-11 to 3.5% for 2011-12, to 5% for 2012-13, to 6.5% in 2013-14, and to 8% effective July 1, 2014.

Changes to actuarial valuation assumptions, including inflation rates, investment returns, mortality rates, and retirement rates, affected the funded status of UCRP. In September 2019, the Regents approved a plan to increase the employer contribution to UCRP from 14% to 17% over six years starting in 2020-21. The Regents are also considering whether there needs to be an increase to the employee contribution rate, as well.

In December 2010 and March 2011, the Regents gave the President authority to transfer funds from the UC Short Term Investment Pool (STIP) to UCRP to stop further

increases in the unfunded liability. In November 2015, the Regents again delegated to the President of the University authority and discretion to fully fund the Actuarially Determined Contribution (ADC) for the non-laboratory segment of UCRP during fiscal years 2015-16 through 2017-18. For UCRP the ADC is the total funding policy contribution less expected member contributions. Campus and medical center payroll funds were assessed a fee to cover the principal and interest on the STIP note and bond debt. These cash transfers to UCRP were authorized to prevent future employer contributions to UCRP from rising to unsustainable levels. In addition, the State provided a total of \$436 million in Proposition 2 funding over three years to help reduce the University's unfunded liability for UCRP, subject to certain conditions described below.

Changes to Post-Employment Benefits

In December 2010, the Regents took action to make changes to post-employment benefits that reduced long-term costs. Most significantly, the Regents approved the establishment of a new tier of pension benefits for employees hired or (in certain situations) rehired on or after July 1, 2013, which increased the early retirement age from 50 to 55 and the maximum age factor from age 60 to 65. In addition, UCRP members hired on or after July 1, 2013 are paying 7% of covered compensation.

In September 2012, the Governor signed legislation to reform the California Public Employees Retirement System (CalPERS) for State employees hired after January 1, 2013. The new legislation limits the maximum compensation used for benefit calculations, requires State employees to pay 50% of their pension costs, and increases the early retirement age from 50 to 52 and the age at which the maximum age factor applies from 63 to 67. The pension reform also included measures (similar to measures the University already has) to prevent abusive practices such as "spiking," when employees are given big raises in their final year of employment as a way to inflate their pensions.

General Accounting Standards Board (GASB) rules require UC to report accrued unfunded pension liabilities on its financial statements. For 2018-19, UC recorded a net pension liability accrual of \$18.1 billion.

In 2012-13, the State provided an augmentation to the University's budget of \$89.1 million intended as support of the State's share of the contribution to UCRP. This augmentation was a welcomed acknowledgement of the State's responsibility for its share of these costs. However, this amount is far short of the \$427 million needed to fully fund the State's estimated 2019-20 share of UCRP. In 2019-20, the University is contributing an estimated \$518 million from core fund sources and \$1.8 billion from all sources to UCRP.

As described earlier, the State provided one-time funding for UCRP totaling \$436 million over three years, beginning in 2015-16. This funding could only be used to help fund the unfunded liability associated with UCRP and was conditional on a requirement that the University adopt a cap on UCRP covered compensation consistent with the cap mandated for other California public retirement plans by the Public Employees' Pension Reform Act of 2013 (the PEPRA cap). In March 2016 the Regents approved a new retirement choice program for employees hired or rehired on or after July 1, 2016. Under this program, new or rehired employees can choose to participate in Pension Choice or Savings Choice.

Employees who choose Pension Choice become members of a new tier (the 2016 Tier) in the current defined benefit plan, UCRP. The 2016 Tier includes a cap on covered compensation for newly hired employees consistent with the PEPRA cap. For 2019, the cap is \$124,180 for employees with Social Security and \$149,016 for employees without Social Security. All other provisions of the 2016 Tier are the same as for the 2013 Tier, including the employer and employee contribution rates. The employee contribution is 7% and the University contribution is 14% of covered compensation, but only up to the PEPRA cap for newly hired employees.

In addition to the defined benefit provided by UCRP, employees who chose Pension Choice may be eligible to receive a supplemental benefit under the UC Defined Contribution (DC) Plan. The employee contribution is 7% of covered compensation in excess of the PEPRA cap. The University contribution is 5% of all covered compensation

for faculty and certain other academic appointees. For all other employees who choose Pension Choice, the University contribution is 3% of covered compensation that exceeds the PEPRA cap. This supplemental DC plan benefit was adopted to ensure that the University's retirement benefits continue to be competitive.

Employees who choose Savings Choice do not become members of UCRP but instead receive their primary retirement benefits from the DC Plan. The employee contribution is 7% of covered compensation; the University contribution is 14% (8% to participant accounts and 6% to reduce the UCRP unfunded liability). Contribution amounts are invested in funds selected by the participant. Under Savings Choice covered compensation is not subject to the PEPRA cap.

Savings Choice was adopted as an alternative to mandatory participation in UCRP to make UC more competitive in the labor markets for specific types of employees who typically have several employers during their careers and, therefore, may prefer the portable benefits provided by a defined contribution plan.

Annuitant Health Benefits

As part of the benefit package, UC provides medical and dental benefits for nearly 68,000 eligible retirees, survivors, and their dependents.³ Eligible individuals who retire from UC with a monthly pension have health care coverage options similar to those offered to active employees. In 2020, the maximum UC contribution will be 70% of retiree medical premiums for in-state Medicare-eligible retirees and 70% of retiree medical premiums for non-Medicare-eligible retirees under age 65. Currently, the University does not pre-fund retiree health benefits and pays its share of health benefits for annuitants on a "pay-as-you-go" basis, whereby current plan premiums and costs are paid from an assessment on payroll of 2.6%. For 2019-20, UC's costs for annuitant health benefits are projected to be \$335 million from all fund sources.

As of July 2019, UC has a Total OPEB liability (TOL) for retiree health of \$19.1 billion. This amount represents the cost of benefits accrued to date by current faculty, staff, and retirees based on past service. In December 2010, in order

³ For campuses and medical centers as of July 2019 (excludes DOE Labs).

to reduce long-term costs and the unfunded liability for retiree health, the Regents approved changes to retiree health benefits. Changes included gradual reductions in the University's aggregate annual contribution to the Retiree Health Program to a floor of 70% (subject to annual review) and a new eligibility formula for all employees hired on or after July 1, 2013.

General Accounting Standards Board (GASB) rules require UC to report accrued unfunded retiree health liabilities on its financial statements. For 2018-19, UC recorded a net retiree health liability accrual of \$19.9 billion.

The budget plan for 2019-20 included funding for the increase in core funded annuitant health benefits.

In January 2018, President Napolitano established the Retiree Health Benefits Working Group. The group was charged with exploring potential strategies and developing options for UC leaders to consider to ensure the long-term viability of the Program. After reviewing the group's report⁴ and reviewing the cost estimates for retiree health benefits

for 2019, the President agreed to the following recommendations: to apply no significant changes to UC's contribution levels or plan design for 2019, and to gradually reduce the UC contribution for eligible retirees age 65 and older who have not elected Medicare coverage (or who are unable to coordinate with Social Security). This gradual reduction is meant to ensure equity between retiree groups.

NON-SALARY PRICE INCREASES

Prices of equipment, supplies, utilities, and other non-salary items purchased by the University are also rising. Non-salary items include instructional equipment and supplies such as chemicals, computers, machinery, library materials, and purchased utilities. Increases in non-salary costs without corresponding increases in budgeted funds oblige campuses to find alternative fund sources or efficiencies to cover these costs.

⁴ See <https://ucnet.universityofcalifornia.edu/news/2018/07/retiree-health-benefits-working-group-issues-report,-president-supportive-of-recommendations.html>.

Department of Energy - UC National Laboratories

Since 1931, the University has played a major public service role as manager of three Department of Energy (DOE) and National Nuclear Security Administration (NNSA) laboratories. In this role UC has focused on ensuring the health and vitality of the intellectual environment, promoting the highest integrity and quality standards in research, and sustaining efficient and effective business and operations functions at the national laboratories. UC's partnership with DOE has also provided extensive research opportunities for faculty and students, both via collaborations with national lab scientists and through access to unique research facilities at the laboratories.

Lawrence Berkeley National Laboratory (LBNL)

The University was awarded a new management and operating contract for LBNL in 2005. This contract, which had an initial five-year term, has been extended through May 31, 2020 following favorable DOE evaluations. The contract may be extended further through an award term provision that adds contract years, based on excellent annual performance, not to exceed 20 years in total, or until 2025.

Los Alamos National Security and Lawrence Livermore National Security Limited Liability Companies

The University's original contracts for Los Alamos National Laboratory (LANL) and Lawrence Livermore National Laboratory (LLNL) ended on May 31, 2006 and September 30, 2007, respectively. Both national laboratories are now managed by limited liability companies (LLCs) partially owned by the University. Los Alamos National Security, LLC (LANS), was awarded a new management and operating contract for LANL on December 21, 2005 and commenced full operations on June 1, 2006. Lawrence Livermore National Security, LLC (LLNS), was awarded a new management and operating contract for LLNL on May 8, 2007, and commenced full operations on October 1, 2007. Both contracts had initial seven-year terms that could be extended further, based on performance, through an

award term provision for additional years, not to exceed 20 years in total. The LLNS contract currently expires on September 30, 2023, but may be extended for additional years through award terms based on laboratory performance.

The LANS management and operating contract for LANL expired on October 31, 2018. The University submitted a successful bid for a follow-on contract for LANL with a new partnership, Triad National Security, LLC, which was awarded the contract in 2018 by the Department of Energy's National Nuclear Security Administration (DOE/NNSA). Triad National Security, LLC assumed management of LANL on November 1, 2018. The contract includes a five-year base with a five year option period, for a total of ten years if all options are exercised. The estimated value of the contract is \$2.5 billion annually.

REVENUE STREAMS

LLC Income

Net income to UC from LANS, LLNS, and now Triad reflects UC's net share of fee income remaining after payment of unreimbursed costs incurred by the LLCs at the two national laboratories and shares to other LLC owners. The majority of net income available after UC's expenses are allocated is used to fund the UC National Laboratory Fees Research Program, which fosters collaborative research between the UC campuses and LLNL and LANL. . At their July 2019 meeting, the Regents approved an expenditure plan for income from Triad and LLNS totaling \$22.50 million for 2019-20, as shown in Display XX-1.

Indirect Cost Reimbursement

Under its contract for LBNL, the University receives indirect cost reimbursement from DOE. In accordance with a Memorandum of Understanding between the University and the State Department of Finance, this indirect cost reimbursement contributes to UC General Fund income and helps support the University's research programs. Negotiations are continuing with DOE on the direct and indirect cost allocation methodology for the coming years.

DOE Management Fee

The University's management fees from LBNL are gross earned amounts before the University's payments of unreimbursed costs. For 2019-20, LBNL is eligible to earn a maximum of \$4.6 million in management fee revenue through the May 31, 2020 contract end date. This fee revenue will be used for costs of LBNL-determined research programs not funded by DOE, reserves for future claims, a portion of UCOP indirect support costs, and other appropriate costs associated with LBNL.

Display XX-1: Expenditure Plan for Income from LLNS and Triad (Dollars in Millions) for 2019-20

Contract Non-Reimbursable Compensation for LLC Employees in UC-Designated Key Personnel	
Positions	\$1.2
UCOP Oversight	\$5.8
Post-Contract Contingency Fund	\$0.9
LLC Fee Contingency Fund (maintained at \$7.0 million)	\$0
UC Laboratory Fees Research Program	\$10.0
Livermore Lab Foundation	\$0
Capital & Campus Opportunity Fund	\$3.3
Triad Reserve Fund	\$0.3
Business Development	\$1.0
Total allocation 2019-20	\$22.50

Historical Perspective

The University's ability to contribute to the economic, intellectual, and cultural vitality of California is due in large part to critical financial support provided by the State of California since the University's inception. That support remains an essential part of the University's core operating budget today. Historically, the University's State-funded budget has reflected the cyclical nature of the State's economy. During times of recession, the State's revenues have declined and appropriations to the University either held constant or were reduced. When the State's economy has been strong, there have been efforts to catch up. Prior to the Great Recession of 2008, significant economic downturns were followed by sustained periods of moderate, and sometimes extraordinary, economic growth. However, although the early 2000s began with an economic downturn, there was no sustained recovery as in prior years. Instead, the State was cast into a second downturn within two years of emerging from the first – and this was the longest and deepest downturn of all. This chapter details the history of State funding of the University over the last several decades.¹ A summary of State budget actions for UC since 2002-03 can be found at the end of this chapter in Display XXI-5.

1995-96 THROUGH 1999-00: THE COMPACT WITH GOVERNOR WILSON

The introduction of Governor Pete Wilson's 1995-96 budget, which included a Compact with Higher Education that was ultimately operational through 1999-00, represented a significant milestone in the recent history of State support for the University. The Compact, described in Display XXI-1, followed years of budget reductions to nearly every aspect of the University's operations, including cuts to the University's core-funded workforce and a substantial gap between UC faculty salaries and those of its comparison institutions. The goal of the Compact was to provide fiscal stability and allow for enrollment growth through a combination of State General Funds and student fee revenue.

DISPLAY XXI-1: PROVISIONS OF THE COMPACT WITH GOVERNOR WILSON, 1995-96 THROUGH 1999-00

- State funding increases to the University's base budget, averaging 4% per year
- Student fee increases averaging about 10% annually
- Further fee increases in selected professional schools
- At least 33% of new student fee revenue dedicated to financial aid
- Added financial aid through State Cal Grant Program
- Additional funding for deferred maintenance
- \$10 million budget reduction each year for four years, i.e., built-in cuts of \$10 million associated with expected efficiency savings
- \$150 million per year for capital budget
- Priority given to life-safety and seismic projects, infrastructure, and educational technology

The funding provided under the Compact was to be sufficient to prevent a further loss of financial ground as the University entered a period of moderate enrollment growth of about 1% per year. The Compact was not intended to provide restoration of funding that had been cut during the early 1990s, but it did provide UC with much-needed fiscal stability after years of cuts as well as a framework to begin planning for the future.

The Compact of 1995-00 was remarkably successful, allowing the University to maintain the quality, accessibility, and affordability that have been the hallmarks of California's system of public higher education. The University enrolled more students than the Compact anticipated, particularly at the undergraduate level, and the State provided funding to support them. Declining budgets were stabilized and further deterioration of the University's budget was halted.

Ultimately, the Governor and the Legislature not only honored the funding principles of the Compact, but also provided funding above the levels envisioned in the Compact. This additional funding allowed for buyouts of student fee increases and for reductions in student fees for California resident students; provided \$35 million for a

¹ Information about State funding is also available in the *Sources of University Funds* chapter.

number of high priority research efforts; and increased funding for K-14 and graduate outreach by \$38.5 million to expand existing programs and develop new ones.

Altogether, the State provided nearly \$170 million in funding above the level envisioned in the Compact. In addition, general obligation bonds and/or lease revenue bonds were provided each year for high priority capital projects.

2000-01: A NEW PARTNERSHIP AGREEMENT WITH GOVERNOR DAVIS

Governor Gray Davis entered office in January 1999 with a commitment to improve California public education at all levels. For UC, his commitment manifested itself in a new Partnership Agreement, described in Display XXI-2, a comprehensive statement of the minimum resources needed for the University to maintain quality and accommodate enrollment growth projected throughout the decade. The Agreement was accompanied by the expectation that the University would manage these resources so as to maintain quality, improve relationships with K-12 schools, and increase community college transfer enrollment, among other goals.

The significant infusion of State funding over this period was welcome support for the University. Faculty salaries once again reached competitive levels, the University began to address salary lags for staff employees, enrollment growth was fully funded, progress was made to restore funding for core areas of the budget, student fees were kept low, and funds supported a variety of research and public service initiatives of importance to the State and the University.

2001-02 THROUGH 2004-05: ANOTHER STATE FISCAL CRISIS

Unfortunately, by 2001-02, the State's fiscal situation began to deteriorate. The University based its budget request on the Partnership Agreement and included information about other high priorities for the University and the State to be funded when the State's economic situation improved. The Governor's Budget, released in January 2001, proposed full funding for the University's budget request as well as additional funds for initiatives beyond the Partnership Agreement. By the time the May Revision was issued, however, the State's financial situation had weakened to

DISPLAY XXI-2: PROVISIONS OF THE PARTNERSHIP AGREEMENT WITH GOVERNOR DAVIS

- 4% increase to the base budget each year to provide adequate funding for salaries and other cost increases
- Marginal cost funding for enrollment growth
- Further 1% annual increase to the base budget to address chronic underfunding of State support for core areas of the budget
- Acknowledgement of the need to either increase fees or provide equivalent revenue
- Commitment to provide State support for summer instruction
- State bond funding of \$210 million annually

the point of requiring reductions to the funding levels that the Governor had originally proposed – and the State became fully engaged in a major fiscal crisis that was to last four years.

The Budget Act of 2001 was the first budget in seven years that did not provide full funding of the Partnership Agreement or the earlier Compact. Partnership funds totaling \$90 million were eliminated from the University's proposed budget, thereby significantly reducing the funding available for compensation and other fixed costs and eliminating the additional 1% (\$30 million) above the 4% base budget increase originally proposed for core needs.

The budget did, however, provide an increase of \$131 million, which included partial funding of the Partnership. Several initiatives representing high priorities for the Governor and the Legislature were also funded above the level called for under the Partnership, totaling \$75 million in one-time and \$3 million in permanent funds. UC's State General Fund budget for 2001-02 totaled \$3.3 billion.

By the time development of the 2002-03 budget began, the State's fiscal situation had deteriorated markedly, necessitating the unusual action on the part of the Governor and the Legislature to adopt mid-year budget reductions for UC totaling \$45.8 million for the 2001-02 budget. The State's budget deficit for 2002-03 eventually grew to \$23.5 billion.

The Budget Act of 2002 provided funding to the University for a 1.5% increase to the base budget — instead of the 4%

called for in the Partnership Agreement — to fund compensation, health and welfare benefits, and other increases. Increases to UC's State General Fund budget totaled \$149 million. While the increases to the budget were welcome, the budget also included base budget reductions totaling \$322 million. State General Funds provided to the University in the 2002-03 Budget Act totaled \$3 billion.

Mid-year cuts instituted in December 2002 (though not formally approved by the Legislature until March 2003) included \$70.9 million in further base budget cuts for UC. In addition to cuts targeted at specific programs, \$19 million was designated as an unallocated reduction², which the University offset by instituting a mid-year increase in mandatory systemwide student fees.

By the time the mid-year budget cuts were approved for 2002-03, the State was facing a deficit for 2003-04 that was unprecedented in magnitude. With the release of the May Revision, the Governor estimated the State deficit to total \$38.2 billion. For the University, cuts proposed by the Governor in January totaling \$373.3 million and affecting nearly every area of the budget were all approved in the final budget act; this included \$179 million in cuts, offset by increases in mandatory systemwide student fees, that otherwise would have been targeted at instructional programs.

The University took \$34.8 million of the total cut that had been targeted at improving the University's student-faculty ratio as an unallocated reduction instead. In addition to cuts proposed by the Governor, the Legislature proposed \$98.5 million in unallocated cuts that ultimately were included in the final budget. Of the total, \$80.5 million was designated as one-time and \$18 million was designated as permanent.

The final budget for 2003-04 did include some funding increases; however, most of the Partnership was not funded and the \$29 million reduction in 2002-03 to core areas of the budget that had previously been specified as a one-time cut was not restored. The 2003-04 State General Fund budget approved in the budget act for the University

was \$2.87 billion, \$282 million less than the State General Fund budget for 2002-03 adopted in September 2002.

A final round of mid-year reductions occurred in December 2003, totaling \$29.7 million. While these mid-year reductions were originally intended by the Governor to be permanent reductions, the budget agreement for 2004-05 restored funding for some programs. Consequently, the mid-year reductions were taken on a temporary basis in 2003-04 and only \$15 million associated with the unallocated reduction was ultimately approved as a permanent reduction. That reduction was ultimately offset on a permanent basis as part of the student fee increases approved for 2004-05.

The State remained in fiscal crisis for 2004-05 and the reductions to the University's budget were once again substantial. State funds for 2004-05 totaled \$2.72 billion, \$147 million less than the funding level provided in the previous year. Base budget reductions included another cut to research and a reduction to academic and institutional support. Once again, another cut had originally been targeted at increasing the University's student-faculty ratio, but was instead taken by the University as an unallocated reduction.

Also included in the total reduction to the University's budget was \$183.5 million in cuts, which were offset by increases in student fees. In 2004-05 undergraduate fees rose 14%, graduate academic fees rose 20%, and graduate professional fees rose 30%, which still generated \$5 million less than expected. As a result of the shortfall, campuses were asked to absorb a temporary unallocated reduction of \$5 million until fees could be raised again in 2005-06.

Nonresident tuition was also increased by 20% in 2004-05 for undergraduate and graduate academic students.

One of the most difficult issues facing the University in the 2004-05 budget related to funding for enrollment. For the first time in recent history, the University was asked to reduce enrollment to help meet budget reductions. The Governor's January budget had proposed a 10%, or 3,200 FTE, reduction in University freshman enrollments and called for the campuses to redirect these students to the

² Unallocated reductions represent State budget cuts to the University that are not assigned to any particular budgetary function or existing program.

California Community Colleges for their first two years of study before accepting them to enroll for their upper-division work at UC, a program referred to as the Guaranteed Transfer Option (GTO). As part of the actions taken on the final budget for 2004-05, the Governor and the Legislature reached a compromise that lowered the reduction in enrollment from 3,200 FTE to 1,650 FTE, which allowed the University to offer freshman admission to all students who originally received the GTO offer and preserve the Master Plan guarantee of access for eligible students.

Following the compromise, the University immediately sent offers of freshman admission to all eligible students who had not yet received a UC freshman offer. Among the roughly 7,600 applicants initially offered GTO and later offered freshman admission, approximately 1,850 enrolled at UC during 2004-05. Another 500 remained as GTO students with plans to later transfer to the University as upper division students.

Among other actions, the Governor's January budget proposed elimination of all State funds for the Institute for Labor and Employment (ILE) and student academic preparation. As part of the final budget package, the Governor and the Legislature assigned ILE a \$200,000 reduction and cut student academic preparation by \$4 million, leaving the program with a total of \$29.3 million for 2004-05. The final budget did, however, eliminate all remaining funding for the Digital California Project (K-12 Internet) from UC's budget. Also, \$80.5 million that was cut as part of a one-time reduction in 2003-04 was restored, consistent with the prior year budget act; consistent with past practice, funding for annuitant health benefits and lease revenue bond payments was provided.

With the 2004-05 budget, as a result of the State's fiscal crisis, the University's State General Fund budget was nearly \$1.5 billion below what it would have been if a normal workload budget had been funded for the previous four years. About one-third of this shortfall was accommodated through base budget cuts to existing programs and one-fourth was addressed through student fee increases. The remainder represented foregone salary increases and other unfunded cost increases.

DISPLAY XXI-3: PROVISIONS OF THE COMPACT WITH GOVERNOR SCHWARZENEGGER, 2005-06 THROUGH 2010-11

- Base budget adjustments of 3% in 2005-06 and 2006-07 and 4% for 2007-08 through 2010-11
- Additional 1% base budget adjustments for annual shortfalls in core areas beginning in 2008-09 and continuing through 2010-11
- Marginal cost funding for enrollment growth of 2.5% per year
- Student fee increases of 14% in 2004-05 and 2005-06 for undergraduates, and 20% in 2004-05 and 10% in 2005-06 for graduate students, followed by fee increases consistent with Governor's proposed long term student fee policy beginning in 2007-08
- Annual adjustments for debt service, employer retirement contributions, and annuitant health benefits
- One-time funds and new initiatives when the State's fiscal situation allowed
- At least \$345 million of capital outlay annually

A NEW COMPACT WITH GOVERNOR SCHWARZENEGGER

As the State's economic recovery remained slow, Governor Arnold Schwarzenegger's proposed solution to the overall deficit included major budget reductions in most areas of the budget, heavy borrowing, and several one-time actions that would only delay further cuts into future years. The University was gravely concerned about the future of the institution and the potential long term effect on quality of the academic enterprise as the State fought its way out of its economic crisis. The Governor was equally concerned about the University's future and asked his administration to work with the University and with the California State University on a new long-term funding agreement for the four year institutions.

A new higher education Compact was announced by Governor Schwarzenegger in May 2004, shown in detail in Display XXI-3. Negotiation of the Compact with Governor Schwarzenegger helped stem the tide of budget cuts that had prevailed for four years.

According to the Compact, beginning in 2007-08, the University was to develop its budget plan each year based on the assumption that fees would be increased consistent with the Governor's proposed long-term student fee policy, which said that student fee increases should be equivalent

to the rise in California per capita personal income or up to 10% in years in which the University determined that providing sufficient funding for programs and preserving academic quality would require more than the per capita increase rate. Revenue from student fees would remain with the University and would not be used to offset reductions in State support. The Compact also called for UC to develop a long-term plan for increasing professional school fees that considered average fees at other public comparison institutions, the average cost of instruction, the total cost of attendance, market factors, the need to preserve and enhance the quality of the professional programs, the State's need for more graduates in a particular discipline, and the financial aid requirements of professional school students. Revenue from professional school fees would remain with UC and would not be returned to the State.

As with the first iteration of the Compact under Governor Wilson, the new Compact included accountability measures relating to issues that traditionally had been high priorities for the State, including maintaining access and quality; implementing predictable and moderate fee increases; enhancing community college transfer and articulation; maintaining persistence, graduation, and time-to-degree rates; assisting the state in addressing the shortage in science and math K-12 teachers; returning to paying competitive salaries and closing long-term funding gaps in core areas of the budget; and maximizing funds from the federal government and other non-State sources. The University was to report to the Administration and the Legislature on its progress in these areas each year.

With the 2005-06 budget, the Compact represented a true turning point. The first three years of the Compact were very good for the University. In each year, the State provided adequate funding and UC began to address major shortfalls that had occurred in the recent fiscal crisis.

Over that three-year period, base budget adjustments helped support salary cost-of-living, market-based, and equity salary adjustments; merit salary increases; health and welfare benefit cost increases; and non-salary price increases. Enrollment workload funding was provided to support significant enrollment growth. In addition, the marginal cost of instruction methodology was revised in

2006-07 to more appropriately recognize the actual cost of hiring faculty and to include a component for maintenance of new space, which had not been adequately funded by the State in recent years. In each of the three years, UC was also able to direct \$10 million for a multi-year plan to restore \$70 million of unallocated reductions that had originally been targeted at instructional programs. Thus, \$30 million was put toward this goal. The State also funded several initiatives during this period, including the Science and Math Initiative, the labor and employment institutes, and the Gallo Substance Abuse Program.

Funding for student academic preparation programs was a major issue in the budget process for all three years. In each year, the Governor's January budget proposed eliminating State funds for this program, leaving only the University's \$12 million in support for student academic preparation as called for in the Compact. In the end, the final budget act each year restored the State support, and in 2006-07 included an augmentation of \$2 million for community college academic preparation programs. In 2007-08, the University's budget included \$500,000 to support an increase for the California State Summer School for Mathematics and Science (COSMOS), an intensive academic four-week residential program for motivated high school students.

Also in 2007-08, the Governor's January budget had proposed eliminating of State funds for labor and employment research; however, the Legislature augmented the University's budget by \$6 million to restore funding for labor research to its original level when the program was initiated in 2000-01.

In 2005-06 and 2007-08, fee increases were implemented, but in 2006-07 the State provided funding to avoid planned increases in student fees.

There were several initiatives the University had proposed in 2007-08 that were not funded in the final budget. The University had requested that employer and employee contributions to the UC Retirement Plan be reinstated (at an estimated cost of \$60 million during the first year); however, the final budget did not include these funds. Also in 2007-08, the January Governor's budget proposed increasing core support for the four California Institutes for

Science and Innovation by a total of \$15 million to ensure that each Institute had a minimum level of operating support with which to operate, which in turn would serve as seed money to continue to attract funds from industry and governmental sources.

UC's State-funded budget rose 5% in 2005-06, 8.2% in 2006-07, and 5.9% in 2007-08, rising from \$2.8 billion in 2005-06 to \$3.26 billion in 2007-08.

2008-09 THROUGH 2011-12: A SECOND STATE FISCAL CRISIS IN A DECADE

The 2008-09 academic year began, fiscally, as a very difficult year for the State. The State's ongoing structural deficit was estimated to be about \$6 billion when the University developed its plan for 2008-09 in November 2007 and ended up totaling closer to \$14.5 billion when the Governor and the Legislature negotiated a final budget in September 2008. The State addressed its problem through a combination of budget cuts, borrowing, and revenue enhancements such as closing tax loopholes, among other actions.

For the University, the budget was constrained, falling short of funding basic costs. In developing the Governor's Budget, the Department of Finance first "funded" a normal workload budget consistent with the Compact with the Governor, and then proposed a 10% reduction (totaling \$332 million) to that higher budget to address the State's fiscal situation. The net result in the Governor's January proposal between 2007-08 and 2008-09 was a reduction to the University's base budget of \$108 million (excluding lease revenue bond payments and one-time funds). The Governor's May revision proposed to restore \$98.5 million of the cut proposed in January, and this restoration was sustained through the signing of the budget act. With the adoption of a new State spending plan in September 2008, the University's State-funded budget was essentially flat compared to 2007-08, totaling \$3.25 billion.

Unfortunately, the nation, and indeed the world, was entering the worst economic recession since the Great Depression of the 1930s. As a result, estimates of revenue contained in the State's September 2008 budget act proved unrealistic and the State began a process of budget negotiations over a ten-month period to resolve its deficit.

First, action occurred in October, after the final budget act had been passed, which required the University to achieve \$33.1 million in one-time savings during 2008-09. During November, the Governor called a special session of the Legislature to deal with the State's fiscal crisis. That effort ended with a new 18-month budget package adopted in February 2009 that implemented mid-year cuts for 2008-09 and developed a spending plan for 2009-10 instituting additional cuts. Within a matter of weeks, it became evident the revenue estimates used to adopt the February Special Session budget were too optimistic. Late into that summer, the Legislature adopted its third budget for 2008-09 (after the fiscal year had ended) and a revised spending plan for 2009-10 to resolve an estimated \$24 billion deficit.

Again, the State used a combination of spending cuts, borrowing, transfers to the General Fund, and increased revenue (through accounting system changes rather than additional taxes) to resolve the budget deficit. The new 18-month State budget included unprecedented cuts for the University. Reductions in 2008-09 totaled \$814 million and included both permanent and one-time cuts. These reductions were partially offset by \$716.5 million in one-time funds provided by the federal government through the American Recovery and Reinvestment Act (ARRA) as part of a wide-ranging economic stimulus package intended to jump-start economic recovery in a number of sectors, including education. Many of the reductions for 2008-09 were not approved until after the fiscal year had ended. In addition, much of the ARRA money was not provided until the new fiscal year. Thus, the University carried forward a large negative balance at the end of 2008-09.

The funding cuts for the University's 2009-10 budget reflected the continuing fiscal crisis in the State. When compared to the budget adopted in September 2008 before the mid-year cuts began, the University's 2009-10 State-funded budget was \$637 million less, totaling \$2.6 billion, a reduction of 20%.

The fiscal turbulence that characterized the 20 months between December 2008 and August 2010 for the State of California did not subside with the adoption of the 2009-10 budget. The State remained unable to develop permanent solutions to address its ongoing fiscal deficit.

Thus, with the presentation in January 2010 of a proposed budget for 2010-11, the Governor once again had difficult choices to make. As a signal of the high priority he placed on maintaining funding for higher education, the Governor proposed additional funding totaling \$370.4 million for UC, including the following:

- restoration of a \$305 million one-time cut adopted as part of the 2009-10 budget package;
- \$51.3 million to support 5,121 FTE students (at the time, UC estimated it had enrolled more than 14,000 students for whom it had not received State funding); and
- \$14.1 million in annuitant benefits.

While the funding only partially addressed the shortfalls UC had experienced since 2007-08, the Governor's proposal was welcome news for UC's students, faculty, and staff, signaling that adequate funding for UC was important to the state.

Supporting the budget proposals Governor Schwarzenegger submitted in his January budget, the final budget included an additional \$264.4 million for the University of California; another \$106 million in one-time ARRA funds was approved in early September. Of this total amount, \$199 million was permanent funding to partially restore the one-time budget cut agreed to as part of the 2009-10 State budget. When combined with the one-time \$106 million in ARRA funds, the total amount restored was \$305 million, which is the total restoration the Governor originally proposed. The total also included the \$51.3 million to address UC's unfunded enrollment. Another \$14.1 million was included for the increase in health care costs for UC's retired annuitants.

The funding of the State's share of the employer contribution to the University's retirement program, estimated to be \$95.7 million in 2010-11, was an issue of great concern. The final budget package for 2010-11 did not contain the funding to support this cost. However, the Legislature did approve trailer bill language to eliminate the statutory language prohibiting any new State General Fund dollars from supporting the State's obligation to the University of California Retirement Program. The Legislature also adopted budget bill language asking for the Legislative Analyst's Office, the Department of Finance, and UC to work together to develop a proposal for how

DISPLAY XXI-4: MAJOR 2011-12 STATE BUDGET ACTIONS (DOLLARS IN THOUSANDS)

Augmentations and Reductions

Restoration of One-time Cuts	\$106,000
Annuitant Health and Dental Benefits	\$7,089
Undesignated Reduction (January)	(\$500,000)
Undesignated Reduction (June)	(\$150,000)
Trigger Cut (December)	\$100,000

Other Initiatives

UC Merced (one-time)	\$5,000
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*Total State Funding = \$2.274 billion**

*Subsequent adjustments reduced this total to \$2.272 billion.

UC's retirement plan would be funded in future years. While this language was vetoed by the Governor, the Legislative Analyst's Office began to present the liability for contributions to the University's retirement program as an issue that must be addressed.

Other actions approved in the final package included budget language requiring UC to redirect \$10 million from existing resources to support planning for a new medical school at UC Riverside and \$600,000 to be redirected from existing resources for the Institute of Governmental Studies at UC Berkeley.

While some of the earlier cuts in State support imposed on the University in 2008-09 and 2009-10 were restored in 2010-11, the University continued to face significant unfunded mandatory cost increases and a significant budget shortfall. In November 2010, in addition to requesting further restoration of funding, support for contributions to the UC Retirement Plan, and funding to cover the costs of unfunded enrollments from the State, UC implemented an 8% student tuition and fee increase for 2011-12.

Despite the University's request for an increase in funding, in January 2011 newly-elected Governor Jerry Brown proposed the restoration of \$106 million that had been funded through ARRA during 2010-11, a \$7.1 million increase to support retiree health benefit cost increases, and a \$500 million undesignated reduction in State support for UC. This reduction was part of a budget package

seeking, through the referendum process, the extension of temporary tax increases that were set to expire in 2011-12. In spring 2011, the Legislature approved the Governor's proposal for UC for 2011-12. UC also faced \$362.5 million in unfunded mandatory costs, bringing UC's total budget gap for 2011-12 at that point to \$862.5 million.

Ultimately, the Governor was unable to gain approval for placing the tax extension referendum on the ballot for 2011-12. On June 30, 2011, the Governor signed a second budget package for 2011-12 that included additional targeted reductions for many State programs, including \$150 million each for UC and CSU, an assumption of significant revenue increases, and a trigger mechanism for more cuts mid-year if revenue targets were not realized.

The combined reduction for UC totaled \$750 million, \$100 million of which was not allocated until mid-year. The decrease represented a cut to UC's budget of 26% over the prior year. Combined with the unfunded mandatory cost increases of \$360 million, the University's budget shortfall rose above \$1 billion.

In response to the additional reduction of \$150 million, at their July meeting the Regents approved a 9.6% increase in mandatory systemwide charges, effective for the fall 2011 term, to replace the lost State funding. This increase, combined with the increase approved in November 2010, meant that mandatory charges rose by \$1,890, or 18.3%, over 2010-11 charges. These increases covered about 26% of the University's budget shortfall for 2011-12.

The University sought endorsement by the Legislature of its plan to target specific cuts to programs that had received large increases from the State but had not been reviewed to determine their necessity or appropriate funding level. While many of the targeted program cuts were accepted, several programs were protected by the Legislature.

2012-13: UC BEGINS TO SEE INCREASES IN STATE FUNDING

The budget package adopted by the Governor and the Legislature for 2012-13 resolved about \$10 billion of the \$15.7 billion gap identified by the Governor in his May Revision, primarily through cuts to Health and Human Services, Social Services, child care, Proposition 98, and other State programs. The 2012-13 State budget assumed

ACTIONS TO ADDRESS BUDGET SHORTFALLS: A SNAPSHOT FROM 2012-13

The 2012-13 academic year marked the fifth year in which UC campuses implemented measures to reduce expenditures, avoid costs, and introduce efficiencies at the local level to address significant budget gaps. Academic and administrative units on the campuses had been assigned cuts ranging in general from 0% to 35%. By 2012-13, more than 4,200 staff had been laid off and more than 9,500 positions had been eliminated or remained unfilled since the beginning of the recent fiscal crisis. Over 180 programs had been eliminated and others consolidated for an estimated savings of over \$116 million.

Against this backdrop, it is important to note that at that time, the University was enrolling about 11,500 students for whom it had never received funding from the State. In addition, in 2011-12 total faculty hires were substantially less than total faculty separations, yet enrollment had grown by more than 10,000 students since the fiscal crisis began. All campuses reported moving aggressively toward implementing shared service centers to reduce duplication and streamline processes. All campuses had curtailed faculty recruitment. No campus was applying across-the-board cuts; each used a consultative, deliberative process to determine how reductions should be allocated. All campuses applied disproportionate cuts to administrative programs in order to reduce the impact on academic programs. Campuses also reported taking a wide variety of other measures to avoid or reduce costs and raise new revenue to address budget shortfalls. Examples from campus reports include:

- Between April 2009 and April 2011, Berkeley reduced its staff workforce by more than 900, a 10% drop;
- Riverside reported that the average size of an undergraduate lower-division lecture class increased 33%, from just over 66 in fall 2008 to over 88 in fall 2011; and
- San Francisco eliminated Clinical Nurse Specialist programs in cardiovascular care and neonatal intensive care, as well as nurse practitioner programs.

adoption of the Governor's revenue-raising initiative (*The Schools and Local Public Safety Protection Act of 2012*) on the November ballot, which was approved by California voters in November 2012 and addressed about \$5.6 billion of the gap. (If the Governor's revenue-raising initiative had not been adopted in the November election, the budget called for nearly \$6 billion in trigger reductions to various State agency budgets, including \$250 million to UC and \$250 million to the California State University.)

For the University, the 2012-13 budget included no further cuts to the base budget and provided an augmentation of \$89.1 million toward the State's share of the employer contribution to the University's retirement plan. The budget also included an augmentation of \$5.2 million for annuitant health benefits and \$11.6 million for lease revenue bond debt service. The new State funding base for UC in 2012-13 was \$2.38 billion, up from \$2.27 billion in 2011-12. Considering the \$15.7 billion budget gap that the Governor and the Legislature were addressing, UC fared well compared to other State agencies.

The budget deal also provided UC with \$125 million in deferred tuition buy-out funding in the 2013-14 budget upon passage of the Governor's revenue-raising initiative passes in November. In addition, UC students were spared major cuts to their Cal Grants in the 2012-13 State budget. (The Governor's January budget had proposed several changes to the entitlement provisions, all of which were rejected by the Legislature.)

2013-14: THE BEGINNING OF THE GOVERNOR'S MULTI-YEAR PLAN

When Governor Brown took office, the State faced a \$26.6 billion short-term budget problem and estimated annual gaps between spending and revenues of roughly \$20 billion. With submission of the 2013-14 State budget to the Legislature in January 2013, the Governor effectively completed his two-year effort to close the state's structural budget gap. His ability to close such a significant budget gap in a short period of time was due in part to the economic recovery at both the national and state levels, as well as the passage of Proposition 30 in November 2012.

The Governor stated his highest budget priority for 2013-14 was education, as reflected in his funding recommendations for K-12, the California Community Colleges, the California State University, and the University of California. For UC and CSU, these recommendations were embodied in a multi-year funding plan that proposed a level of State funding stability for both university systems over a four-year period. The overall base budget for UC increased from \$2.377 billion in 2012-13 to \$2.844 billion in 2013-14. However, \$400 million of that total was debt service related to capital outlay and was not available for

operating budget purposes. Consistent with the 2012-13 Budget Act, the budget for 2013-14 included \$125 million to buy out the planned tuition and fee increase from 2012-13, and \$125.1 million for a 5% base budget adjustment, the first of four years of base budget adjustments under the Governor's multi-year funding plan for UC. Of this \$125.1 million, \$15 million was directed to the UC Riverside School of Medicine, \$10 million was to be used to advance online education, and \$3.6 million was to be used to fund the debt service for a \$45 million Classroom and Academic Office Building at the Merced campus. The budget also provided \$6.4 million for annuitant health benefit costs and a \$10.2 million adjustment for lease revenue bond payments. In addition, the budget shifted \$200.4 million of State General Obligation Bond debt service to the University's base; with this shift, the University was put in a position to benefit from future base budget adjustments.

Funding for debt service for capital outlay was changed substantially in 2013-14. With the shift of General Obligation Bond debt service to the University's budget, all State-funded debt service for capital outlay is now contained in the University's base budget. As indicated above, this is important for future base budget increases. Moreover, the State Lease Revenue bond debt has been shifted off of the State's balance sheet and onto the University's (General Obligation Bond debt service cannot be shifted from the State). The University refinanced the Lease Revenue bond debt in September 2013 – and by doing so reduced the annual debt service by \$85 million for ten years and by \$17 million for the subsequent seven years. Thus, about \$185 million of the \$221.4 million in UC's base budget that otherwise would have been used to cover the State's debt service payments was available to help cover operating costs in 2013-14. The Legislature adopted budget trailer bill language requiring that the savings be used to address the University's UCRP unfunded liability. Because these were one-time funds, this requirement temporarily alleviated pressure on the University's operating budget and helped mitigate the fact that there was no source of funding identified for the cost increases associated with the tuition-funded portion of the University's core operating budget.

Consistent with the Governor's request, there was no tuition increase proposed for 2013-14; tuition and fees remained flat at 2011-12 levels.

2014-15: ANOTHER YEAR OF FISCAL CONSTRAINT

The 2014-15 budget year marked the second year of the Governor's multi-year plan for UC. In addition to the base budget adjustment proposed by the Governor, other additional funds were targeted for the Governor's and Legislature's priorities. Specifically, the 2014-15 budget included the following provisions:

- an additional \$142.2 million from the State General Fund, representing a 5% increase to the University's base State General Fund budget (or a 1.8% increase in total core funds).
- \$2 million in one-time funding for the Labor Centers at UC Berkeley and UC Los Angeles;
- \$2 million in one-time funding to establish the California Blueprint for Research to Advance Innovations in Neuroscience (Cal BRAIN) program intended to leverage federal funding opportunities to accelerate the development of brain mapping techniques;
- \$15 million from the Proposition 63 mental health fund for the Behavior Health Centers for Excellence of California at UC Davis and UC Los Angeles.

The final budget specified that \$2 million of the permanent State funds provided to the University must be used for the Labor Research Centers at the Berkeley and Los Angeles campuses (in addition to the one-time funds noted above), and that \$770,000 must be used for the Statewide Database Project at the Berkeley campus. In addition, the State budget included funding for the first year of the new Middle Class Scholarship Program, which provides new assistance to students at UC and CSU with family incomes up to \$150,000. UC students received \$14.7 million in scholarship support from this program in 2014-15. UC students also received an additional \$2 million in Cal Grants in 2014-15 due to a modest increase in Cal Grant B awards. Further information about Cal Grant B awards can be found in the *Student Financial Aid* chapter of this document.

The budget package also included \$50 million in one-time funds for the Governor's Innovation Awards, provided to the three higher education segments for programs that promote

increased graduation rates, decreased time to degree, or improved Community College transfer.

Finally, the budget authorized funding for the UC Berkeley Tolman Hall Seismic Replacement Project, in addition to projects that had already been authorized for 2014-15.

Upon taking office, President Napolitano pledged that tuition and fees would not rise in 2014-15 while the University developed a long-term plan to keep student fees as affordable as possible and end sudden spikes in tuition levels in response to reduced State support. Thus, tuition and fees remained flat in 2014-15.

Despite the University's efforts to secure additional State funds in the 2014-15 budget, the final budget provided no new permanent funds for key components of the University's 2014-15 budget plan, including the State's share of the employer contribution to the University of California Retirement Plan, enrollment growth, and reinvestment in academic quality. Specifically, the University's budget plan requested \$35 million from the State for the first year of a multi-year effort to reinvest in critical areas of the academic program that had been adversely affected by the State's recent fiscal crisis. Examples of these critical areas include improving the student-faculty ratio, addressing the competitive gap in faculty and staff salaries, increasing graduate student support, increasing undergraduate instructional support, and supporting start-up costs for new faculty.

The State funds provided in 2014-15 were a welcome departure from past years' base budget cuts. However, the State funds were insufficient alone to fund mandatory cost increases, let alone to support other high-priority costs and begin to reinvest in quality. With tuition and fees held flat, more than half of the University's core budget had no source of funds to support mandatory and high-priority cost adjustments.

2015-16 AND 2016-17: A NEW BUDGET FRAMEWORK WITH THE GOVERNOR

With enactment of the 2015-16 State Budget Act, the University of California found itself in a much better situation relative to the year before. The 2015-16 budget signed by the Governor included the principal elements of the funding framework that UC negotiated with the

Governor and which were incorporated into the Governor's May Revision. The framework agreed upon with the Governor would provide the University with base budget adjustments of 4% annually over the next four years, through 2018-19, extending by two years the horizon of the Governor's original multi-year funding plan for the University. These base adjustments would be expected to increase State funding over the next four years by \$507 million.

Under the agreement with the Governor, the University would also receive \$436 million in one-time funds over the next three years in Proposition 2 debt repayment funds for UCRP, including \$96 million in 2015-16, \$170 million in 2016-17, and \$170 million in 2017-18. As specified in the State Constitution, Proposition 2 funds must be supplemental above Regent-approved contribution rates and must be used to help pay down the unfunded liability associated with UCRP. This funding was contingent upon the Regents approving a cap on pensionable salary at the same rate as the State's Public Employee Pension Reform Act (PEPRA) cap for the defined benefit plan for employees hired on or after July 1, 2016. The President convened a retirement options task force to advise on the design of new retirement options that would include the new pensionable salary cap consistent with PEPRA. The retirement options were brought to the Regents at the March 2016 meeting for review and were approved. The pension cap previously in place was equivalent to the Internal Revenue Service level, set at \$265,000. Under the new design, for employees hired on or after July 1, 2016, pensionable salaries would be capped at \$117,020 in 2015-16, for those in the defined benefit plan. New employees will have the opportunity to choose a fully defined contribution plan as a retirement option as an alternative to the PEPRA-capped defined benefit plan. For represented groups retirement options will be subject to collective bargaining.

These changes to UC's pension obligations were a key priority of the Governor and the Legislature. The one-time money from Proposition 2 could be combined with additional internal borrowing to improve the funding status of UCRP.

The framework also provided \$25 million in one-time funding for deferred maintenance. This was the first time

since 2002 that the State provided funding to the University to help address its aging physical plant. The \$25 million in one-time Cap and Trade funds for energy projects proposed in the framework negotiated by the President and the Governor were not included in the final budget act.

The framework also called for no tuition increases in 2015-16 and 2016-17, with tuition increases generally pegged to the rate of inflation to be implemented beginning in 2017-18. The Student Services Fee was to increase 5% (\$48) in 2015-16 and each year thereafter with the customary one-third of the increase being directed to financial aid. Fifty percent of the remaining revenue generated from the increase would be used to enhance student mental health services, consistent with the University's priority to build resources to support mental health programs, and the remaining 50% would be distributed to support other student services programs consistent with the Regental policy on the Student Services Fee.

The framework also acknowledged the University's plan to increase nonresident supplemental tuition by up to 8% for 2015-16 (or \$1,830) and 2016-17 and 5% thereafter, as approved by the Regents in May 2015. Additionally, the framework recognized the increases in Professional Degree Supplemental Tuition (PDST) approved by the Regents in November 2014 for existing and new programs other than the law schools. The framework called for no increases in law school PDSTs for the next four years.

In addition to these funding elements, the budget framework included a number of performance-related provisions. These provisions were the subject of considerable discussion and examination during the Select Advisory Committee meetings and covered five basic performance areas involving delivery of the academic program.

2015-16 Budget Act Funding. In the final budget negotiations, the Legislature approved all of the major funding elements of the framework between UC and the Administration and as set forth in the Governor's May Revision. As noted above, however, the funding framework did not address one significant element of UC's long-term funding plan: UC's desire to substantially increase

enrollment of California students. While independent groups have confirmed that UC met its enrollment obligations under the Master Plan, even through the recession of the prior several years, enrollment growth was a key priority both for the University and for the Legislature. The final 2015-16 budget language indicated that the University would receive an additional \$25 million above its 4% base budget adjustment if it could demonstrate in the spring of 2016 that it had admitted a sufficient number of resident undergraduate students to achieve an increase in 2016-17 of 5,000 students over the 2014-15 academic year. As explained in more detail in the *General Campus Instruction* chapter of this document, the University met this enrollment goal and received the \$25 million at the end of the 2015-16 fiscal year.

The final budget also provided an additional \$4 million in permanent funding for the Labor Centers at the Berkeley and Los Angeles campuses above the 4% base budget adjustment and above the \$2 million in permanent funding directed to the centers from the University's base support in 2014-15. The budget also included \$1 million in one-time funds for the Wildlife Health Center at the Davis campus.

Additionally, the final budget called for UC to redirect funds within its existing base budget to fund several items that continue to be priorities for various legislators, including planning for a School of Medicine at the Merced campus, the California DREAM Loan Program, and the Statewide Data project at the Berkeley campus.

For 2015-16, per Education Code Sections 92493 and 92496 (AB 94), the Department of Finance also authorized the University to finance 15 capital outlay projects totaling \$296.7 million with its State General Fund support appropriation.

Language accompanying the funding called for several reports and actions by the University and others. One provision indicated the Legislature's intent that UC use revenue from enrollment of nonresident students to help fund the 2016-17 enrollment increase. Language in the budget also called for several reports: a report on all "University fund sources legally allowable" to support costs for education; another three-year financial sustainability plan, which was again to be approved by the Board of

Regents; and another on the use of funds for support services to increase graduation rates for low-income and underrepresented populations.

In addition, the University was asked to take two more actions: revise Market Reference Zones for Senior Management Group employees to include comparable positions in State government and post information on its website that explains the details related to the subcategories of personnel within the Managers and Senior Professional personnel category, disaggregating personnel categories by fund source.

The higher education "trailer bill," which was legislation that accompanied the budget to implement certain related statutory provisions, also included two studies of note: one asked the Legislative Analyst to study the need for additional new campuses for CSU and for UC and another asked the California State University to conduct a new eligibility study with the University's participation. An eligibility study of UC determines the proportion of students eligible for admission to the University, and recommends adjustment of admissions policies in the event of divergence from the Master Plan.

By adopting the provisions of the funding framework agreed upon by the Governor and the University, the budget approved by the Legislature put UC in a strong financial position. The budget provided the University with predictable and stable support for the next four years and enabled students and their families to confidently budget for the costs of a UC education. This outcome was sparked in large part by the plan adopted by the Board in November, which generated spirited debate regarding appropriate funding levels for higher education in California.

2016-17 Budget Act Funding. For 2016-17, ongoing State General Funds totaled \$3.279 billion, a 4.6% increase over 2015-16. This included a 4% base budget adjustment and \$91 million in one-time funds for a variety of programs of interest to the University, the Legislature, and the Governor. In addition, the State provided \$171 million of Proposition 2 funding to help address the unfunded liability associated with the University of California Retirement Plan (UCRP), consistent with the budget framework agreement, and \$3 million in one-time additional support from the State

Transportation Account for the Institutes of Transportation Studies.

With regard to enrollment funding, the final budget included a compromise reached between the Governor and the Legislature to fund enrollment growth of 2,500 FTE California resident undergraduates with \$18.5 million. Similar to the arrangement in the prior year budget, UC was required to demonstrate by May 1, 2017 that it had taken sufficient action to increase enrollment of California resident undergraduate students by this number in 2017-18 in order to receive the enrollment funding. The level of enrollment increase was consistent with UC's own plan for growing enrollment by 2,500 undergraduates in 2017-18 and in 2018-19. However, the level of funding was less than the University's marginal cost of instruction of \$10,000 per student that UC requested; the amount provided was about \$7,400 per student, equivalent to the amount CSU receives per student from the State. That said, this was higher than the \$5,000 per student provided by the State for enrollment growth in the prior year.

In addition, the University was requested to adopt a policy that specifies a limit on nonresident enrollment. A nonresident undergraduate enrollment policy was developed and presented to the Board in May 2017. The Regents approved the policy, which caps nonresident enrollment on five campuses at 18%, with the other four campuses capped at the proportion that each campus enrolled in the 2017-18 academic year.

As noted above, the Budget Act included funding for several initiatives, including support for the Innovation and Entrepreneurship initiative, a program the University requested funding for early in the legislative process through a bill introduced by Assembly member Jacqui Irwin. One-time funds totaling \$22 million were provided to develop the infrastructure necessary to support innovative startups by sponsoring business training, incubation space, proof-of-concept support, and affiliations with local industry, among other activities. Funding for this initiative demonstrated the State's support for the crucial role UC research plays in the economic development of California.

Also, as part of a package of initiatives proposed by President Pro Tem of the Senate Kevin de León, the

budget included \$20 million in one-time funds for support services for low-income students and students from underrepresented minority groups, including students who were enrolled in high schools in which more than 75% of the school's total enrollment is composed of pupils who are identified as either English learners, eligible for free or reduced-price meals, or foster youth. These schools, which are eligible for supplemental funding under the state's Local Control Funding Formula (LCFF), are known as "LCFF plus" (LCFF+) schools.

The final budget also included one-time funds for the following purposes:

- \$35 million for deferred maintenance;
- \$5 million for a firearms research center;
- \$4 million for the development of online courses for K-12 students;
- \$2 million for a program promoting best practices in equal employment opportunity to help enhance faculty diversity;
- \$2 million for the Wildlife Health Center at the Davis campus for support of local marine mammal stranding networks;
- \$500,000 for the Underground Scholars Initiative at the Berkeley campus; and
- \$100,000 for the Wildlife Health Center for large whale entanglement programs.

2017-18 Budget Act Funding. For 2017-18, the University received overall ongoing State support of about \$3.5 billion, including \$175.2 million for general obligation bond debt service. This included a 4% base budget increase of about \$131 million. In addition, the University received \$176 million in one-time funding, including the third installment of Proposition 2 funds in the amount of \$169 million toward the unfunded liability associated with the University of California Retirement Plan. The Act also replaced \$50 million of State General Funding with \$50 million of revenue from the Tobacco Tax Act of 2016 (Proposition 56), to be used for graduate medical education.

The 2017-18 State Budget Act included an expectation that the University would enroll at least 1,500 more resident undergraduate students in 2018-19 compared to 2017-18. The Act acknowledged that the State and UC should share the cost of enrollment growth. As part of that cost-sharing, the Act requested that UC, the Legislature, and the

Department of Finance identify funds to support enrollment growth from those that UC currently expends on systemwide programs or at UCOP. The budget also included \$5 million in new General Fund support to enroll an additional 500 graduate students in 2017-18.

The budget conditioned expenditure of \$50 million of the University's State General Fund appropriation upon UC demonstrating to the Department of Finance that it had met the following five conditions:

- demonstrate completion of an activity-based costing pilot at two additional campuses;
- attain a ratio at each UC campus except Merced and San Francisco of at least one entering transfer student for every two entering freshman students beginning in the 2018–19 academic year;
- by April 1, 2018, implement the recommendations issued by the California State Auditor;
- adopt a policy that does not provide supplemental retirement payments for any new employee designated to be in the Senior Management Group no later than May 1, 2018; and
- provide detailed reporting on revenues and expenditures as highlighted in the recent audit.

The final budget also included one-time funds for the following purposes:

- \$2.5 million to address food insecurity;
- \$2 million for a program promoting best practices in equal employment opportunity to help enhance faculty diversity;
- \$2 million for the Wildlife Health Center at UC Davis for support of local marine mammal stranding networks; and
- \$100,000 for the Wildlife Health Center for large whale entanglement programs.

Finally, the 2017-18 State Budget Act created a separate line-item appropriation of State General Funds to replace funding that UCOP would otherwise have received through two assessments. Previously, the general campus assessment supported a portion of the UCOP budget. This assessment was replaced by a State General Fund appropriation of \$296.4 million, and a separate assessment attributable to UCPath was replaced by a State General Fund appropriation of \$52.4 million.

2018-19 Budget Act Funding. For 2018-19, the University received overall ongoing State support of about \$3.5 billion, including \$184.4 million for general obligation bond debt

service. This included a 2.9% base budget increase totaling \$98.1 million. In addition, the University received \$248.8 million in one-time funding, including \$105 million for general University needs.

The 2018-19 State Budget Act redirected \$8.55 million from UCOP to campuses to support a portion of 2018-19 enrollment growth, consistent with the University's proposal in response to provisions of the Budget Act of 2017. In addition, \$5 million was included as ongoing funding to support 500 new California undergraduates in 2018-19 (in addition to the 1,500 new California undergraduates funded by the internal reallocation of University resources).

The final budget also included one-time funds for the following purposes:

- \$40 million for graduate medical education to backfill, on a one-time basis, General Funds that were cut from the University's budget and replaced with Proposition 56 funds in 2017-18;
- \$35 million for deferred maintenance;
- \$25 million for UC Berkeley to address its operating deficit;
- \$15 million to support residency programs at UC Riverside's School of Medicine that utilize telemedicine and/or increase the number of psychiatry residents who use telemedicine;
- \$12 million to support research for Jordan's Syndrome at the Institute for Regenerative Cures at UC Davis;
- \$4 million for legal services to undocumented and immigrant students, faculty, and staff;
- \$3 million to support UC research efforts to combat Valley Fever;
- \$2.8 million to support planning efforts for Aggie Square, a satellite campus for UC Davis in Sacramento;
- \$2 million for a program promoting best practices in equal employment opportunity to help enhance faculty diversity;
- \$1.8 million for the Ralph J. Bunche Center for African American Studies at UCLA;
- \$1.5 million to address food insecurity;
- \$1.2 million for a two-year pilot program to provide anti-bias training for administrators, faculty, staff, and student leaders at UC and CSU campuses; and
- \$500,000 for the California Vectorborne Disease Surveillance Gateway at UC Davis.

The Budget Act continued to fund UCOP and UCPath as separate line items for General Fund support. It also allowed UCPath to assess campuses for up to \$15.3 million

in additional expenditures, consistent with projected operating cost increases as UCPath was deployed to more UC campuses in 2018-19. Additionally, the Act created a new, separate line item for Agriculture and Natural Resources as part of the UCOP Budget.

2019-20 Budget Act Funding. For 2019-20, the University will receive overall ongoing State support of about \$3.7 billion, including a projected \$187.5 million for general obligation bond debt service. The University will receive an additional \$247.5 million in permanent funding over 2018-19 levels for the following purposes:

- \$119.8 million to support ongoing mandatory cost increases, equivalent to a 3.4% adjustment to the University's 2018-19 permanent State General Fund appropriation;
- \$49.9 million to support enrollment of 4,860 additional California resident undergraduates over 2018-19 enrollment levels by 2020-21;
- \$40 million to restore State General Fund support that was cut in 2017-18 when the University was directed to shift funding for its graduate medical education programs from State General Fund to revenues generated by Proposition 56 (the California Healthcare, Research and Prevention Tobacco Tax Act of 2016);
- \$15 million to support student basic needs, including nutrition assistance and housing assistance;
- \$10 million to support enrollment growth in 2018-19 beyond the enrollment level previously funded by the State in past budget acts;
- \$5.3 million for student mental health services, equivalent to the estimated revenue that would have been generated for this purpose if the University had increased the Student Services Fee by 5% in 2019-20;
- \$4 million to provide financial aid to California resident students enrolled in summer session, with continued funding beyond summer 2021 contingent upon estimated State General Fund revenues in 2021-22 and 2022-23; and
- \$3.5 million to support rapid rehousing efforts for homeless and housing insecure students.

The final budget also includes one-time funds for the following purposes:

- \$143.5 million for deferred maintenance;
- \$15 million to develop or expand degree and certificate completion programs through UC Extension;
- \$10 million to support conservation genomics programs;
- \$7.5 million to support Charles R. Drew University, an independent nonprofit university partnered with UCLA to provide training for leaders who will advance medical

practice and knowledge in underserved areas;

- \$6 million for UC outreach and support to low-income students and students from underrepresented groups;
- \$6 million to establish the University of California and California State University Collaborative for Neurodiversity and Learning;
- \$3.85 million for the UC Davis Firearms Violence Research Center to support firearms injury and death prevention training;
- \$3.5 million to the UCSF Dyslexia Center to support a dyslexia screening and early intervention pilot program;
- \$3.5 million to support the Ralph J. Bunche Center for African American Studies at UCLA;
- \$2.5 million to support the creation or expansion of equal opportunity employment programs;
- \$2.5 million to support the Latino Policy and Politics Initiative at UCLA;
- \$2 million for grants administered by the Wildlife Health Center at UC Davis;
- \$2 million to support the Asian American and Asian Diaspora Studies Program at UC Berkeley;
- \$1.9 million to support the Statewide Database at UC Berkeley;
- \$1.5 million for the Center for Labor Research and Education at UC Berkeley;
- \$1.3 million for a statewide grant program expanding the number of primary care and emergency medicine residency slots;
- \$1.2 million to establish the Marcus Foster Doctoral Fellowship program at the UC Berkeley Graduate School of Education;
- \$1 million to support the Bulosan Center for Filipino Studies at UC Davis; and
- \$250,000 to support the Berkeley Underground Scholars initiative at UC Berkeley.

The Budget Act continues to fund UCOP, UCPath and Agriculture and Natural Resources as separate line items for General Fund support. It also allows UCPath to assess campuses for up to \$15.3 million in additional expenditures, consistent with projected operating cost increases as UCPath is deployed to more UC campuses in 2019-20.

Display XXI-5 provides a brief outline of State budget actions since 2002-03.

Historical Perspective

Display XXI-5: The UC Budget Since 2002-03

Fiscal Year	Total State Funding (\$ in Billions)*	Notes
2002-03	\$3.15	With the State in fiscal crisis, Partnership funding was provided for enrollment and annuitant benefits, but UC's base increase was lower than planned and partially offset by fee increases, and cuts were made throughout the University.
2003-04	\$2.87	Large cuts were made throughout the enterprise, as high as 50% in outreach, but increases to enrollment and annuitant benefits were still provided.
2004-05	\$2.70	The effect of the State budget on UC peaked, with increases in student fees and the student-faculty ratio, a smaller freshman class, and large budget reductions throughout the University.
2005-06	\$2.84	A return to increases in base budget and enrollment funding and few targeted cuts through the new Compact with Governor Schwarzenegger signaled a turning point in UC's budget after four years of reductions.
2006-07	\$3.07	The State provided Compact funding, as well as additional funding for outreach and research, and provided students with fee increase buyouts.
2007-08	\$3.26	Compact funding was again available, with some additional funding for outreach.
2008-09	\$2.69	With the onset of another fiscal crisis, the Compact was funded, but equivalent unallocated cuts were assigned and institutional support was reduced.
2009-10	\$3.04	The Compact was again funded, but equivalent unallocated cuts were assigned; in addition, large and wide-ranging cuts were assigned throughout the University.
2010-11	\$3.02	The Governor prioritized investing in higher education, which was reflected in the final State budget with partial restoration of earlier cuts and new funding for enrollment.
2011-12	\$2.27	With the Governor unable to place a referendum to extend temporary tax increases on the ballot, higher education was assigned cuts totaling \$1.7 billion. Also, for the first time, revenue from student tuition and fees exceeded revenue from the State.
2012-13	\$2.38	While most other State agencies received more budget cuts, the University received a budget augmentation to help fund the State's share of the employer contribution to the University's retirement plan. Given the passage of the Governor's revenue-raising initiative in November 2012, no further cuts occurred to the University's budget. A planned tuition increase was avoided with the promise of tuition buy-out funds provided in 2013-14, tied directly to the success of if Proposition 30 on the November ballot.
2013-14	\$2.84	The State began implementing the Governor's multi-year funding plan for higher education, increasing the University's base budget 5% and marking the end of a half-decade of base budget cuts and extreme fiscal volatility in State funding. Tuition was held flat.
2014-15	\$2.99	The 5% base budget adjustment proposed by the Governor was provided to UC; however, with tuition held flat at the 2011-12 level, there was insufficient funding to meet UC's basic mandatory costs.
2015-16	\$3.26	UC's base budget was adjusted upward by 4% and tuition was once again held flat. One-time funds were provided for UCRP, deferred maintenance, and energy projects. A new framework agreed to with the Governor provided a stable base from which to plan.
2016-17	\$3.54	Consistent with the framework agreement with the Governor, UC's base budget was adjusted upward by 4% and tuition was held flat. One-time funds were made available for a variety of initiatives of importance to the University, Governor, and Legislature.
2017-18	\$3.54	Per the framework agreement with the Governor, UC's base budget was adjusted upward by 4%. In line with the framework, tuition was raised for the first time in six years. The Legislature directly appropriated funding for UCOP and UCPath.
2018-19	\$3.69	UC's base budget was adjusted upward by 2.9%, \$38.4 million less than the amount the University would have received under the framework agreement with the Governor. Tuition was lowered by \$60. The Legislature again directly appropriated funding for UCOP and UCPath.
2019-20	\$3.70	UC's base budget was adjusted upward by 7.1%, with a large portion of new funding appropriated additional workload. Funding available to address general operating cost increases increased by 3.4%. The benefit to UC campuses will be partly offset, however, by the elimination of \$95 million in onetime funding that the University received in 2018-19.

* Nominal Dollars

Appendix Display 1: Budget for Current Operations and Extramurally Funded Operations (Dollars in Thousands)

I N C O M E		
	2018-19	2019-20
	Actual	Estimated
BUDGET FOR CURRENT OPERATIONS		
General Fund		
State of California	\$ 3,512,606	3,750,556
GO Bond Debt Service	181,652	187,488
UC Sources	1,585,283	1,664,085
Total General Funds	\$ 5,279,541	5,602,129
Restricted Funds		
State of California	\$ 76,454	190,050
U. S. Government Appropriations	17,856	18,000
Educational, Student Services & Professional School Fees	3,726,398	3,801,349
Extension, Summer Session & Other Fees	1,113,532	1,148,536
Teaching Hospitals	12,781,190	14,059,309
Auxiliary Enterprises	1,351,959	1,387,110
Endowment Earnings	249,658	352,684
Other	5,612,122	5,927,978
Total Restricted Funds	\$ 24,929,169	26,885,016
TOTAL BUDGET FOR CURRENT OPERATIONS	\$ 30,208,710	32,487,145
EXTRAMURALLY FUNDED OPERATIONS		
State of California	\$ 353,232	353,000
U.S. Government	3,112,849	3,113,000
Private Gifts, Contracts & Grants	2,256,535	2,333,257
Other	532,606	548,584
TOTAL EXTRAMURALLY FUNDED OPERATIONS	\$ 6,255,222	6,347,841
DEPARTMENT OF ENERGY LABORATORY (LBNL)	\$ 775,784	946,000
TOTAL OPERATIONS	\$ 37,239,716	39,780,986
E X P E N D I T U R E S		
	2018-19	2019-20
	Actual	Estimated
BUDGET FOR CURRENT OPERATIONS		
Instruction:		
General Campus	\$ 3,622,748	3,585,855
Health Sciences	2,923,204	3,140,302
Summer Session	19,246	21,421
University Extension	277,569	314,830
Research	862,687	976,011
Public Service	304,572	331,415
Academic Support: Libraries	292,117	316,137
Academic Support: Other	2,377,037	2,528,847
Teaching Hospitals	12,792,301	14,070,547
Student Services	1,125,187	1,217,099
Institutional Support	1,628,582	1,665,437
Operation and Maintenance of Plant	737,396	959,015
Student Financial Aid	1,586,993	1,643,492
Auxiliary Enterprises	1,351,959	1,387,110
Provisions	125,460	144,877
Program Maintenance: Cost Increases	181,652	184,751
TOTAL BUDGET FOR CURRENT OPERATIONS	\$ 30,208,710	32,487,145
EXTRAMURALLY FUNDED OPERATIONS		
Sponsored Research	\$ 4,144,331	4,205,695
Other Activities	2,110,891	2,142,146
TOTAL EXTRAMURALLY FUNDED OPERATIONS	\$ 6,255,222	6,347,841
DEPARTMENT OF ENERGY LABORATORY (LBNL)	\$ 775,784	946,000
TOTAL OPERATIONS	\$ 37,239,716	39,780,986

Appendix Display 2: University of California Income and Funds Available (Dollars in Thousands)

	2018-19 Actual	2019-20 Estimated
STATE APPROPRIATIONS		
General Fund	\$ 3,512,606	3,750,556
GO Bond Debt Service	181,652	187,488
Special Funds	<u>76,454</u>	<u>190,050</u>
TOTAL, STATE APPROPRIATIONS	\$ 3,770,712	4,128,094
UNIVERSITY SOURCES		
General Funds Income		
Student Fees		
Nonresident Supplemental Tuition	\$ 1,175,999	1,266,255
Application for Admission and Other Fees	48,296	49,726
Interest on General Fund Balances	2,515	2,515
Federal Contract & Grant Overhead	303,775	303,775
Overhead on State Agency Agreements	26,682	26,682
Other	<u>28,016</u>	<u>15,132</u>
Total UC General Fund Income	\$ 1,585,283	1,664,085
Special Funds Income		
GEAR UP State Grant Program	\$ 3,500	3,500
United States Appropriations	17,856	18,000
Local Government	185,711	186,000
Student Fees		
Tuition [Educational Fee]	3,093,612	3,152,945
Student Services Fee [Registration Fee]	311,101	317,068
Professional School Fees	321,685	331,336
University Extension Fees	277,569	285,896
Summer Session Fees	19,246	21,421
Other Fees	816,717	841,219
Sales & Services - Teaching Hospitals	12,781,190	14,059,309
Sales & Services - Educational Activities	4,047,237	4,330,544
Sales & Services - Support Activities	968,270	997,318
Endowments	249,658	352,684
Auxiliary Enterprises	1,351,959	1,387,110
Contract and Grant Off-the-Top Overhead	51,704	52,000
DOE Management Fee	25,230	25,000
University Opportunity Fund	228,901	229,000
Other	<u>101,569</u>	<u>104,616</u>
Total Special Funds	\$ 24,852,715	26,694,966
TOTAL, UNIVERSITY SOURCES	\$ 26,437,998	28,359,051
TOTAL INCOME AND FUNDS AVAILABLE	\$ 30,208,710	32,487,145

Note: Excludes extramural funds.

Appendix Display 3: SAPEP State General Funds and University Funds Budgets (Dollars in Thousands)

This table shows the budget for each SAPEP program in 1997-98, prior to significant funding augmentations; in 2000-01, when SAPEP funding reached its peak; in 2008-09, representative of a few years of stable funding for SAPEP programs; and in 2009-10 and 2011-12, when SAPEP programs were subject to budget reductions. 2012-13 through 2018-19 budget levels remain unchanged from 2011-12 levels.

	1997-98	2000-01	2008-09	2009-10	2011-12	2018-19
Direct Student Services Programs						
Community College Transfer Programs ¹	\$1,718	\$5,295	\$3,279	\$3,058	\$2,413	\$2,413
EAOP	4,794	16,094	8,914	8,416	7,356	7,356
Graduate and Professional School Programs	1,893	8,575	2,661	2,623	2,408	2,408
MESA Schools Program	4,169	9,355	4,861	4,394	3,806	3,806
MESA Community College Program	22	1,309	327	327	327	327
Puente High School Program	-	1,800	1,051	980	793	793
Puente Community College Program	162	757	450	419	340	340
Student-Initiated Programs	-	-	440	440	388	388
UC Links	-	1,656	694	622	622	622
Statewide Infrastructure Programs						
ASSIST	360	360	429	389	377	377
Community College Articulation	-	-	600	600	600	600
Longer-Term Strategies						
K-20 Regional Intersegmental Alliances ²	-	15,591	1,395	1,361	1,209	1,209
Direct Instructional Programs						
Preuss Charter School	-	1,000	1,000	1,000	-	-
UC Scout (online courses, formerly UC College Preparation)	-	8,400	3,106	3,059	2,411	2,411
Other Programs						
Evaluation	-	1,386	1,180	1,077	855	855
Other Programs ³	203	3,887	936	829	652	652
Programs that have been eliminated or consolidated ⁴	4,750	9,717	-	-	-	-
Total	\$18,071	\$85,182	\$31,323	\$29,594	\$24,557	\$24,557
General Funds	\$16,996	\$82,243	\$19,323	\$17,594	\$12,557	\$12,557
University Funds	\$1,075	\$2,939	\$12,000	\$12,000	\$12,000	\$12,000

¹ Includes an additional \$2 million beginning in 2006-07 for the UC/Community College Transfer Initiative for Access and Success.

² Formerly School-University Partnerships.

³ Currently includes University-Community Engagement, ArtsBridge, and other programs.

⁴ Includes Test Preparation, Dual Admissions, Gateways, Informational Outreach and Recruitment, Central Valley Programs, and UC ACCORD.

Appendix Display 4: Expenditures by Fund Category, 1981-82 through 2018-19 (Dollars in Thousands)

	Core Funds ¹	Medical Centers	Other Sales and Services ²	Government Contracts and Grants ³	Private Support ⁴	Other Sources ⁵	Total
1982-83	1,356,921	552,051	487,739	1,762,389	134,328	55,801	4,349,229
1983-84	1,375,660	599,469	520,933	2,009,905	155,344	65,769	4,727,080
1984-85	1,713,333	656,730	585,721	2,301,626	173,915	99,711	5,531,036
1985-86	1,930,560	721,270	678,215	2,463,841	198,812	101,484	6,094,182
1986-87	2,060,597	791,311	786,544	2,624,563	222,154	120,950	6,606,119
1987-88	2,210,321	889,243	852,459	2,763,853	243,764	114,455	7,074,095
1988-89	2,341,127	1,002,931	934,816	3,004,112	272,735	126,654	7,682,375
1989-90	2,479,193	1,135,818	1,079,927	3,136,119	320,818	160,336	8,312,211
1990-91	2,553,581	1,384,994	1,120,365	3,177,571	339,355	159,856	8,735,722
1991-92	2,616,360	1,499,059	1,159,711	3,391,898	365,686	200,862	9,233,576
1992-93	2,583,420	1,570,590	1,253,884	3,549,713	392,237	249,080	9,598,924
1993-94	2,536,244	1,577,936	1,332,303	3,487,858	402,886	211,889	9,549,116
1994-95	2,652,691	1,609,225	1,461,064	3,541,181	456,243	210,963	9,931,367
1995-96	2,749,966	1,821,352	1,627,301	3,486,237	485,694	233,928	10,404,478
1996-97	2,924,341	1,906,454	1,660,431	3,789,774	540,194	245,973	11,067,167
1997-98	3,079,198	1,820,062	1,751,567	4,071,680	602,666	292,693	11,617,866
1998-99	3,461,295	1,811,702	1,936,911	4,459,237	675,989	343,902	12,689,036
1999-00	3,675,637	2,109,383	2,043,538	4,595,925	758,731	359,378	13,542,592
2000-01	4,206,044	2,662,843	2,055,110	4,831,201	851,127	335,733	14,942,058
2001-02	4,460,637	2,880,079	2,098,019	5,463,526	926,355	310,351	16,138,967
2002-03	4,395,681	3,114,683	2,218,477	6,294,983	1,002,227	352,736	17,378,787
2003-04	4,492,468	3,378,824	2,324,417	6,462,902	1,073,828	398,059	18,130,498
2004-05	4,490,079	3,579,653	2,510,067	6,575,227	1,107,101	432,874	18,695,001
2005-06	4,781,469	3,705,005	2,718,023	6,710,678	1,235,546	467,634	19,618,355
2006-07	5,083,748	4,126,066	3,049,629	4,755,621	1,338,356	516,046	18,869,466
2007-08	5,427,851	4,554,364	3,533,777	3,649,040	1,512,588	530,338	19,207,958
2008-09	4,980,495	4,913,330	3,693,711	3,324,549	1,632,435	517,999	19,062,519
2009-10	5,719,980	5,131,765	3,705,881	3,913,403	1,633,590	500,655	20,605,274
2010-11	5,921,179	5,595,563	4,107,989	4,256,858	1,684,369	449,128	22,015,086
2011-12	6,086,352	6,288,149	4,803,190	4,155,490	1,781,530	459,013	23,573,724
2012-13	6,244,066	6,717,232	5,324,980	4,059,432	1,820,887	606,151	24,772,748
2013-14	6,622,008	7,395,124	5,267,674	4,303,103	1,941,341	471,421	26,000,671
2014-15	7,035,207	7,939,016	6,282,346	3,978,141	2,009,279	395,228	27,639,217
2015-16	7,364,848	9,467,149	6,835,022	4,076,941	2,055,270	473,254	30,272,484
2016-17	8,009,129	10,394,923	7,298,955	4,028,370	2,250,404	401,607	32,383,388
2017-18	8,576,495	10,779,753	7,688,045	4,371,873	2,431,426	378,033	34,225,625
2018-19	8,824,288	12,781,190	8,199,315	4,339,675	2,506,193	407,404	37,058,065
2019-20 Est.	9,215,990	14,059,309	8,598,092	4,623,550	2,685,941	410,616	39,593,498

¹ **Core funds** consists of State General Funds [Excluding GO bond debt service & one-time State contribution to UCRS], UC General Funds, American Recovery and Reinvestment Act (2009) funds, and student tuition and fees.

² **Other sales and services** revenue includes support for clinical care staff; auxiliary enterprises such as housing and dining services, parking facilities, and bookstores; University Extension; and other complementary activities such as museums, theaters, conferences, and publishing.

³ **Government contracts and grants** include direct support for specific research programs as well as student financial support and DOE Laboratory operations.

⁴ **Private Support** includes earnings from the Regents' endowment earnings, grants from campus foundations, and other private gifts, grants, and contracts from alumni and friends of the University, foundations, corporations, and through collaboration with other universities.

⁵ **Other sources** include indirect cost recovery funding from research contracts and grants and other fund sources.

Appendix Display 5: Core Funds Expenditures by Fund Source, 1981-82 through 2018-19 (Dollars in Thousands)

	State General Funds	UC General Funds ¹	ARRA Funds ²	Tuition	Student Services Fees	Professional Degree Supplemental Tuition	Total
1982-83	1,125,425	86,349	-	85,705	59,442	-	1,356,921
1983-84	1,110,012	96,695	-	102,984	65,969	-	1,375,660
1984-85	1,457,144	89,100	-	97,322	69,767	-	1,713,333
1985-86	1,641,741	119,936	-	97,025	71,858	-	1,930,560
1986-87	1,788,304	97,462	-	99,357	75,474	-	2,060,597
1987-88	1,888,872	126,870	-	112,102	82,477	-	2,210,321
1988-89	1,970,047	160,524	-	124,815	85,741	-	2,341,127
1989-90	2,076,662	172,676	-	135,944	93,911	-	2,479,193
1990-91	2,135,733	166,407	-	148,891	100,750	\$1,800	2,553,581
1991-92	2,105,560	182,250	-	223,690	103,046	1,814	2,616,360
1992-93	1,878,531	237,954	-	360,883	104,232	1,820	2,583,420
1993-94	1,793,236	223,104	-	418,623	99,461	1,820	2,536,244
1994-95	1,825,402	246,121	-	473,374	104,423	3,371	2,652,691
1995-96	1,917,696	249,124	-	479,480	90,238	13,428	2,749,966
1996-97	2,057,257	270,258	-	473,991	102,182	20,653	2,924,341
1997-98	2,180,350	281,911	-	480,804	105,304	30,829	3,079,198
1998-99	2,517,773	301,996	-	489,944	114,096	37,486	3,461,295
1999-00	2,715,762	340,779	-	460,913	114,014	44,169	3,675,637
2000-01	3,191,614	370,631	-	472,287	127,904	43,608	4,206,044
2001-02	3,322,659	428,115	-	525,943	130,663	53,257	4,460,637
2002-03	3,150,011	480,256	-	577,056	130,956	57,402	4,395,681
2003-04	2,868,069	549,393	-	860,935	131,596	82,475	4,492,468
2004-05	2,698,673	544,258	-	993,607	143,548	109,993	4,490,079
2005-06	2,838,567	554,151	-	1,118,723	147,278	122,750	4,781,469
2006-07	3,069,339	560,594	-	1,171,290	161,427	121,098	5,083,748
2007-08	3,257,409	577,299	-	1,299,590	165,575	127,978	5,427,851
2008-09 ²	2,418,291	616,872	\$268,500	1,358,365	164,856	153,611	4,980,495
2009-10 ²	2,591,158	626,413	448,000	1,722,946	163,595	167,868	5,719,980
2010-11 ²	2,910,697	691,238	106,553	1,816,444	190,703	205,544	5,921,179
2011-12	2,271,410	792,340	-	2,584,272	200,188	238,142	6,086,352
2012-13	2,376,805	848,466	-	2,549,871	211,196	257,728	6,244,066
2013-14 ³	2,644,064	891,422	-	2,606,111	221,913	258,498	6,622,008
2014-15 ³	2,797,495	1,072,026	-	2,678,868	226,119	260,699	7,035,207
2015-16 ³	2,959,247	1,194,188	-	2,702,598	239,228	269,587	7,364,848
2016-17 ³	3,148,838	1,418,345	-	2,896,443	254,277	291,226	8,009,129
2017-18 ³	3,225,725	1,541,576	-	3,203,628	297,624	307,939	8,576,495
2018-19 ³	3,512,607	1,585,283	-	3,093,612	311,101	321,685	8,824,288
2019-20 Est. ³	3,750,556	1,664,085	-	3,152,945	317,068	331,336	9,215,990

¹ UC General Funds includes Nonresident Supplemental Tuition, application fees, a portion of indirect cost recovery from federal and state contracts and grants, a portion of patent royalty income, and interest in General Fund balances.

² State Fiscal Stabilization Funds authorized by the 2009 American Reinvestment and Recovery Act.

³ State General Funds exclude GO bond debt service & one-time State contribution to UCRS.

Appendix Display 6: General Campus and Health Sciences Full-Time Equivalent Student Enrollment

	2018-19 Actual	2019-20 Estimated
Berkeley		
General Campus	39,946	40,638
Health Sciences	<u>789</u>	<u>828</u>
Total	40,735	41,466
Davis		
General Campus	35,202	35,292
Health Sciences	<u>2,364</u>	<u>2,390</u>
Total	37,566	37,682
Irvine		
General Campus	35,267	36,081
Health Sciences	<u>1,513</u>	<u>1,500</u>
Total	36,780	37,581
Los Angeles		
General Campus	39,649	39,872
Health Sciences	<u>3,762</u>	<u>3,762</u>
Total	43,411	43,634
Merced		
General Campus	8,570	9,008
Riverside		
General Campus	23,038	23,998
Health Sciences	<u>372</u>	<u>426</u>
Total	23,410	24,424
San Diego		
General Campus	36,296	37,432
Health Sciences	<u>1,964</u>	<u>1,995</u>
Total	38,260	39,427
San Francisco		
Health Sciences	4,557	4,632
Santa Barbara		
General Campus	26,019	26,653
Santa Cruz		
General Campus	19,837	20,357
Totals		
General Campus	263,824	269,331
Health Sciences	<u>15,321</u>	<u>15,533</u>
Total	279,145	284,864

Appendix Display 7: General Campus Full-Time Equivalent Student Enrollment

	2018-19 Actual	2019-20 Estimated
Berkeley		
Undergraduate	31,632	31,988
Graduate	<u>8,314</u>	<u>8,650</u>
Total	39,946	40,638
Davis		
Undergraduate	30,381	30,486
Graduate	<u>4,821</u>	<u>4,806</u>
Total	35,202	35,292
Irvine		
Undergraduate	30,915	31,658
Graduate	<u>4,352</u>	<u>4,423</u>
Total	35,267	36,081
Los Angeles		
Undergraduate	32,624	32,847
Graduate	<u>7,025</u>	<u>7,025</u>
Total	39,649	39,872
Merced		
Undergraduate	7,925	8,330
Graduate	<u>645</u>	<u>678</u>
Total	8,570	9,008
Riverside		
Undergraduate	20,500	21,326
Graduate	<u>2,538</u>	<u>2,672</u>
Total	23,038	23,998
San Diego		
Undergraduate	30,888	31,760
Graduate	<u>5,408</u>	<u>5,672</u>
Total	36,296	37,432
Santa Barbara		
Undergraduate	23,242	23,809
Graduate	<u>2,777</u>	<u>2,844</u>
Total	26,019	26,653
Santa Cruz		
Undergraduate	18,008	18,502
Graduate	<u>1,829</u>	<u>1,855</u>
Total	19,837	20,357
General Campus		
Undergraduate	226,115	230,706
Graduate	<u>37,709</u>	<u>38,625</u>
Total	263,824	269,331

Appendix Display 8: Enrollment History, 1980-81 through 2019-20

	<u>General Campus</u>		<u>Health Sciences</u>		Total
	Undergraduate	Graduate	Undergraduate	Graduate	
1980-81	88,963	24,704	697	11,755	126,119
1981-82	90,476	25,037	492	12,030	128,035
1982-83	92,771	24,470	370	12,102	129,713
1983-84	94,469	24,192	354	11,807	130,822
1984-85	96,613	24,996	344	11,752	133,705
1985-86	99,392	25,440	344	11,752	136,928
1986-87	103,506	26,229	347	11,694	141,776
1987-88	108,141	25,676	358	11,808	145,983
1988-89	112,377	25,676	364	11,903	150,320
1989-90	114,365	26,142	380	11,976	152,863
1990-91	116,546	26,798	412	12,125	155,881
1991-92	117,297	26,511	407	12,156	156,371
1992-93	115,133	26,374	410	12,318	154,235
1993-94	113,548	25,930	400	12,324	152,202
1994-95	113,869	25,546	400	12,235	152,050
1995-96	116,176	25,346	356	12,320	154,198
1996-97	117,465	25,318	315	12,289	155,387
1997-98	119,852	25,682	278	11,999	157,811
1998-99	123,227	25,629	292	12,252	161,400
1999-00	127,208	26,114	274	12,304	165,900
2000-01	132,026	26,666	274	12,279	171,245
2001-02	143,853	28,725	287	12,439	185,304
2002-03	152,320	30,738	321	12,809	196,188
2003-04	156,243	32,385	162	13,106	201,896
2004-05	156,066	31,872	127	13,338	201,403
2005-06	159,515	32,397	131	13,325	205,368
2006-07	166,966	32,882	202	13,596	213,646
2007-08	173,703	33,652	350	13,608	221,313
2008-09	180,210	33,939	462	13,714	228,325
2009-10	183,515	34,673	512	13,913	232,613
2010-11	185,442	34,851	504	14,075	234,872
2011-12	187,566	34,865	470	14,156	237,057
2012-13	188,991	34,556	435	14,138	238,156
2013-14	193,012	34,817	383	14,034	242,246
2014-15	199,995	35,341	353	14,098	249,787
2015-16	203,129	35,489	352	14,519	253,489
2016-17	213,213	35,829	358	14,557	263,957
2017-18	219,909	36,999	367	14,830	272,104
2018-19	226,115	37,709	364	14,957	279,145
2019-20 (est.)	230,706	38,625	370	15,163	284,864

Appendix Display 9: UC Mandatory Student Charge Levels

	Student Services Fee	Tuition					Surcharge ²
		Undergraduate		Graduate Academic		Professional ¹	
		Resident	Nonresident	Resident	Nonresident		
1980-81	\$419	\$300	\$300	\$360	\$360	\$360	
1981-82	463	475	475	535	535	535	
1982-83	510	725	725	785	785	785	
1983-84	523	792	792	852	852	852	
1984-85	523	722	722	782	782	782	
1985-86	523	722	722	782	782	782	
1986-87	523	722	722	782	782	782	
1987-88	570	804	804	804	804	804	
1988-89	594	840	840	840	840	840	
1989-90	612	864	864	864	864	864	
1990-91	673	951	951	951	951	951	
1991-92	693	1,581	1,581	1,581	1,581	1,581	
1992-93	693	2,131	2,131	2,131	2,131	2,131	
1993-94	693	2,761	2,761	2,761	2,761	2,761	
1994-95	713	3,086	3,086	3,086	3,086	3,086	
1995-96	713	3,086	3,086	3,086	3,086	3,086	
1996-97	713	3,086	3,086	3,086	3,086	3,086	
1997-98	713	3,086	3,086	3,086	3,086	3,086	
1998-99	713	2,896	3,086	3,086	3,086	3,086	
1999-00	713	2,716	3,086	2,896	3,086	3,086	
2000-01	713	2,716	3,086	2,896	3,086	3,086	
2001-02	713	2,716	3,086	2,896	3,086	3,086	
2002-03 ³	713	3,121	3,491	3,301	3,491	3,491	
2003-04	713	4,271	4,751	4,506	4,751	4,751	
2004-05	713	4,971	5,451	5,556	5,801	4,751	
2005-06	735	5,406	5,922	6,162	6,429	5,357	\$700
2006-07	735	5,406	5,922	6,162	6,429	5,357	1,050
2007-08	786	5,790	6,342	6,594	6,888	5,736	60
2008-09	864	6,202	6,789	7,062	7,374	6,144	60
2009-10 ⁴	900	7,998	8,742	7,998	8,352	7,920	60
2010-11	900	9,342	10,200	9,342	9,750	9,252	60
2011-12	972	11,160	11,160	11,160	11,160	11,160	60
2012-13	972	11,160	11,160	11,160	11,160	11,160	60
2013-14	972	11,160	11,160	11,160	11,160	11,160	60
2014-15	972	11,160	11,160	11,160	11,160	11,160	60
2015-16	1,020	11,160	11,160	11,160	11,160	11,160	60
2016-17	1,074	11,160	11,160	11,160	11,160	11,160	60
2017-18	1,128	11,442	11,442	11,442	11,442	11,442	60
2018-19	1,128	11,442	11,442	11,442	11,442	11,442	0
2019-20	1,128	11,442	11,442	11,442	11,442	11,442	0

¹ Charged to professional degree students. Through 2010-11, excludes students paying Architecture, Environmental Design, Information Management, International Relations and Pacific Studies, Physical Therapy, Preventive Veterinary Medicine, Public Health, Public Policy, Social Welfare, and Urban Planning Professional Degree Supplemental Tuition.

² The temporary surcharge was assessed to professional degree students *only* prior to 2007-08 and then assessed to *all* students from 2006-07 to 2017-18 to cover the costs associated with the *Kashmiri v Regents* and the *Luquetta v Regents* settlements. The temporary \$60 surcharge built into Tuition was eliminated in 2018-19.

³ Mid-year increases were applied to spring academic term. Figures shown are annualized levels.

⁴ Mid-year increases were applied in January 2010. Figures shown are annualized levels.

Appendix Display 10: UC Average Annual Student Charges for Resident Undergraduate Students

	Mandatory Charges	Increase	Campus-based Fees ¹	Total Charges	Total Increase
1980-81	\$719	5.0%	\$57	\$776	5.4%
1981-82	938	30.5%	60	998	28.6%
1982-83	1,235	31.7%	65	1,300	30.3%
1983-84	1,315	6.5%	72	1,387	6.7%
1984-85	1,245	-5.3%	79	1,324	-4.5%
1985-86	1,245	0.0%	81	1,326	0.2%
1986-87	1,245	0.0%	100	1,345	1.4%
1987-88	1,374	10.4%	118	1,492	10.9%
1988-89	1,434	4.4%	120	1,554	4.2%
1989-90	1,476	2.9%	158	1,634	5.1%
1990-91	1,624	10.0%	196	1,820	11.4%
1991-92	2,274	40.0%	212	2,486	36.6%
1992-93	2,824	24.2%	220	3,044	22.4%
1993-94	3,454	22.3%	273	3,727	22.4%
1994-95	3,799	10.0%	312	4,111	10.3%
1995-96	3,799	0.0%	340	4,139	0.7%
1996-97	3,799	0.0%	367	4,166	0.7%
1997-98	3,799	0.0%	413	4,212	1.1%
1998-99	3,609	-5.0%	428	4,037	-4.2%
1999-00	3,429	-5.0%	474	3,903	-3.3%
2000-01	3,429	0.0%	535	3,964	1.6%
2001-02	3,429	0.0%	430	3,859	-2.6%
2002-03 ²	3,834	11.8%	453	4,287	11.1%
2003-04	4,984	30.0%	546	5,530	29.0%
2004-05	5,684	14.0%	628	6,312	14.1%
2005-06	6,141	8.0%	661	6,802	7.8%
2006-07	6,141	0.0%	711	6,852	0.7%
2007-08	6,636	8.1%	881	7,517	9.7%
2008-09	7,126	7.4%	901	8,027	6.8%
2009-10 ³	8,958	25.7%	938	9,896	23.3%
2010-11	10,302	15.0%	977	11,279	14.0%
2011-12	12,192	18.3%	989	13,181	16.9%
2012-13	12,192	0.0%	1,008	13,200	0.1%
2013-14	12,192	0.0%	1,030	13,222	0.2%
2014-15	12,192	0.0%	1,125	13,317	0.7%
2015-16	12,240	0.4%	1,211	13,451	1.0%
2016-17	12,294	0.4%	1,258	13,552	0.8%
2017-18	12,630	2.7%	1,334	13,964	3.0%
2018-19	12,570	-0.5%	1,386	13,956	-0.1%
2019-20	12,570	0.0%	1,452	14,022	0.5%

¹ Beginning in 1998-99, campus-based fees are calculated on a weighted basis using enrollments.

² Mid-year charge increases were applied to spring academic term. Figures shown are annualized charge levels.

³ Mid-year charge increases were applied in January 2010. Figures shown are annualized charge levels.

Appendix Display 11: UC Average Annual Student Charges for Nonresident Undergraduate Students

	Mandatory Charges	Increase	Campus-based Fees ¹	Nonresident Supplemental Tuition	Increase	Total Charges	Total Increase
1980-81	\$719	5.0%	\$57	\$2,400	0.0%	\$3,176	1.3%
1981-82	938	30.5%	60	2,880	20.0%	3,878	22.1%
1982-83	1,235	31.7%	65	3,150	9.4%	4,450	14.7%
1983-84	1,315	6.5%	72	3,360	6.7%	4,747	6.7%
1984-85	1,245	-5.3%	79	3,564	6.1%	4,888	3.0%
1985-86	1,245	0.0%	81	3,816	7.1%	5,142	5.2%
1986-87	1,245	0.0%	100	4,086	7.1%	5,431	5.6%
1987-88	1,374	10.4%	118	4,290	5.0%	5,782	6.5%
1988-89	1,434	4.4%	120	4,806	12.0%	6,360	10.0%
1989-90	1,476	2.9%	158	5,799	20.7%	7,433	16.9%
1990-91	1,624	10.0%	196	6,416	10.6%	8,236	10.8%
1991-92	2,274	40.0%	212	7,699	20.0%	10,185	23.7%
1992-93	2,824	24.2%	220	7,699	0.0%	10,743	5.5%
1993-94	3,454	22.3%	273	7,699	0.0%	11,426	6.4%
1994-95	3,799	10.0%	312	7,699	0.0%	11,810	3.4%
1995-96	3,799	0.0%	340	7,699	0.0%	11,838	0.2%
1996-97	3,799	0.0%	367	8,394	9.0%	12,560	6.1%
1997-98	3,799	0.0%	413	8,984	7.0%	13,196	5.1%
1998-99	3,799	0.0%	428	9,384	4.5%	13,611	3.1%
1999-00	3,799	0.0%	474	9,804	4.5%	14,077	3.4%
2000-01	3,799	0.0%	535	10,244	4.5%	14,578	3.6%
2001-02	3,799	0.0%	430	10,704	4.5%	14,933	2.4%
2002-03 ²	4,204	10.7%	453	12,009	16.6%	17,137	14.8%
2003-04	5,464	30.0%	546	13,730	10.0%	19,740	15.2%
2004-05	6,164	12.8%	628	16,476	20.0%	23,268	17.9%
2005-06	6,657	8.0%	661	17,304	5.0%	24,622	5.8%
2006-07	6,657	0.0%	711	18,168	5.0%	25,536	3.7%
2007-08	7,188	8.0%	881	19,068	5.0%	27,137	6.3%
2008-09	7,713	7.3%	901	20,021	5.0%	28,635	5.5%
2009-10 ³	9,702	25.8%	938	22,021	10.0%	32,661	14.1%
2010-11	11,160	15.0%	977	22,021	0.0%	34,158	4.6%
2011-12	12,192	9.2%	989	22,878	3.9%	36,059	5.6%
2012-13	12,192	0.0%	1,008	22,878	0.0%	36,078	0.1%
2013-14	12,192	0.0%	1,030	22,878	0.0%	36,100	0.1%
2014-15	12,192	0.0%	1,125	22,878	0.0%	36,195	0.3%
2015-16	12,240	0.4%	1,211	24,708	8.0%	38,159	5.4%
2016-17	12,294	0.4%	1,258	26,682	8.0%	40,234	5.4%
2017-18	12,630	2.7%	1,334	28,014	5.0%	41,978	4.3%
2018-19	12,570	-0.5%	1,386	28,992	3.5%	42,948	2.3%
2019-20	12,570	0.0%	1,452	29,754	2.6%	43,766	1.9%

¹ Beginning in 1998-99, campus-based fees are calculated on a weighted basis using enrollments.

² Mid-year charge increases were applied to spring academic term. Figures shown are annualized charge levels.

³ Mid-year charge increases were applied in January 2010. Figures shown are annualized charge levels.

Appendix Display 12: UC Average Annual Student Charges For Resident Graduate Academic Students

	Mandatory Charges	Increase	Campus-based Fees ¹	Total Charges	Total Increase
1980-81	\$779	4.6%	\$45	\$824	5.1%
1981-82	998	28.1%	45	1,043	26.6%
1982-83	1,295	29.8%	51	1,346	29.1%
1983-84	1,375	6.2%	58	1,433	6.5%
1984-85	1,305	-5.1%	63	1,368	-4.5%
1985-86	1,305	0.0%	64	1,369	0.1%
1986-87	1,305	0.0%	82	1,387	1.3%
1987-88	1,374	5.3%	100	1,474	6.3%
1988-89	1,434	4.4%	125	1,559	5.8%
1989-90	1,476	2.9%	222	1,698	8.9%
1990-91	1,624	10.0%	482	2,106	24.0%
1991-92	2,274	40.0%	557	2,831	34.4%
1992-93	2,824	24.2%	608	3,432	21.2%
1993-94	3,454	22.3%	703	4,157	21.1%
1994-95	3,799	10.0%	786	4,585	10.3%
1995-96	3,799	0.0%	836	4,635	1.1%
1996-97	3,799	0.0%	868	4,667	0.7%
1997-98	3,799	0.0%	923	4,722	1.2%
1998-99	3,799	0.0%	839	4,638	-1.8%
1999-00	3,609	-5.0%	969	4,578	-1.3%
2000-01	3,609	0.0%	1,138	4,747	3.7%
2001-02	3,609	0.0%	1,305	4,914	3.5%
2002-03 ²	4,014	11.2%	1,327	5,341	8.7%
2003-04	5,219	30.0%	1,624	6,843	28.1%
2004-05	6,269	20.1%	1,606	7,875	15.1%
2005-06	6,897	10.0%	1,811	8,708	10.6%
2006-07	6,897	0.0%	1,973	8,870	1.9%
2007-08	7,440	7.9%	2,281	9,721	9.6%
2008-09	7,986	7.3%	2,367	10,353	6.5%
2009-10 ³	8,958	12.2%	2,505	11,463	10.7%
2010-11 ⁴	10,302	15.0%	602	10,904	-4.9%
2011-12	12,192	18.3%	606	12,798	17.4%
2012-13	12,192	0.0%	616	12,808	0.1%
2013-14	12,192	0.0%	621	12,813	0.0%
2014-15	12,192	0.0%	697	12,889	0.6%
2015-16	12,240	0.4%	801	13,041	1.2%
2016-17	12,294	0.4%	807	13,101	0.5%
2017-18	12,630	2.7%	884	13,514	3.2%
2018-19	12,570	-0.5%	898	13,468	-0.3%
2019-20	12,570	0.0%	931	13,501	0.2%

¹ Beginning in 1998-99, campus-based fees are calculated on a weighted basis using enrollments.

² Mid-year charge increases were applied to spring academic term. Figures shown are annualized charge levels.

³ Mid-year charge increases were applied in January 2010. Figures shown are annualized charge levels.

⁴ Beginning in 2010-11, campus-based fee figures for graduate students do not include waivable health insurance fee.

Appendix Display 13: UC Average Annual Student Charges For Nonresident Graduate Academic Students

	Mandatory Charges	Increase	Campus-based Fees ¹	Nonresident Supplemental Tuition	Increase	Total Charges	Total Increase
1980-81	\$779	4.6%	\$45	\$2,400	0.0%	\$3,224	1.3%
1981-82	998	28.1%	45	2,880	20.0%	3,923	21.7%
1982-83	1,294	29.8%	51	3,150	9.4%	4,495	14.6%
1983-84	1,375	6.2%	58	3,360	6.7%	4,793	6.6%
1984-85	1,305	-5.1%	63	3,564	6.1%	4,932	2.9%
1985-86	1,305	0.0%	64	3,816	7.1%	5,185	5.1%
1986-87	1,305	0.0%	82	4,086	7.1%	5,473	5.6%
1987-88	1,374	5.3%	100	4,290	5.0%	5,764	5.3%
1988-89	1,434	4.4%	125	4,806	12.0%	6,365	10.4%
1989-90	1,476	2.9%	222	5,799	20.7%	7,497	17.8%
1990-91	1,624	10.0%	482	6,416	10.6%	8,522	13.7%
1991-92	2,274	40.0%	557	7,699	20.0%	10,530	23.6%
1992-93	2,824	24.2%	608	7,699	0.0%	11,131	5.7%
1993-94	3,454	22.3%	703	7,699	0.0%	11,856	6.5%
1994-95	3,799	10.0%	786	7,699	0.0%	12,284	3.6%
1995-96	3,799	0.0%	836	7,699	0.0%	12,334	0.4%
1996-97	3,799	0.0%	868	8,394	9.0%	13,061	5.9%
1997-98	3,799	0.0%	923	8,984	7.0%	13,706	4.9%
1998-99	3,799	0.0%	839	9,384	4.5%	14,022	2.3%
1999-00	3,799	0.0%	969	9,804	4.5%	14,572	3.9%
2000-01	3,799	0.0%	1,138	10,244	4.5%	15,181	4.2%
2001-02	3,799	0.0%	1,305	10,704	4.5%	15,808	4.1%
2002-03 ²	4,204	10.7%	1,327	11,132	4.0%	16,663	5.4%
2003-04	5,464	30.0%	1,624	12,245	10.0%	19,333	16.0%
2004-05	6,514	19.2%	1,606	14,694	20.0%	22,814	18.0%
2005-06	7,164	10.0%	1,811	14,694	0.0%	23,669	3.7%
2006-07	7,164	0.0%	1,973	14,694	0.0%	23,831	0.7%
2007-08	7,734	8.0%	2,281	14,694	0.0%	24,709	3.7%
2008-09	8,298	7.3%	2,367	14,694	0.0%	25,359	2.6%
2009-10 ³	9,312	12.2%	2,505	14,694	0.0%	26,511	4.5%
2010-11 ⁴	10,710	15.0%	602	14,694	0.0%	26,006	-1.9%
2011-12	12,192	13.8%	606	15,102	2.8%	27,900	7.3%
2012-13	12,192	0.0%	616	15,102	0.0%	27,910	0.0%
2013-14	12,192	0.0%	621	15,102	0.0%	27,915	0.0%
2014-15	12,192	0.0%	697	15,102	0.0%	27,991	0.3%
2015-16	12,240	0.4%	800	15,102	0.0%	28,143	0.5%
2016-17	12,294	0.4%	807	15,102	0.0%	28,203	0.2%
2017-18	12,630	2.7%	884	15,102	0.0%	28,616	1.5%
2018-19	12,570	-0.5%	898	15,102	0.0%	28,570	-0.2%
2019-20	12,570	0.0%	931	15,102	0.0%	28,603	0.1%

¹ Beginning in 1998-99, campus-based fees are calculated on a weighted basis using enrollments.

² Mid-year charge increases were applied to spring academic term. Figures shown are annualized charge levels.

³ Mid-year charge increases were applied in January 2010. Figures shown are annualized charge levels.

⁴ Beginning in 2010-11, campus-based fee figures for graduate students do not include waivable health insurance fee.

Appendix Display 14: 2019-20 Total Charges for Undergraduates and Graduate Academics¹

	Without Health Insurance		With Health Insurance	
	Undergraduate	Graduate	Undergraduate	Graduate
Berkeley				
Residents	\$14,253	\$14,187	\$17,539	\$19,427
Nonresidents	44,007	29,289	47,293	34,529
Davis				
Residents	14,495	13,598	17,117	18,542
Nonresidents	44,249	28,700	46,871	33,644
Irvine				
Residents	13,727	13,349	15,621	17,687
Nonresidents	43,481	28,451	45,375	32,789
Los Angeles				
Residents	13,240	12,953	15,757	17,272
Nonresidents	42,994	28,055	45,511	32,374
Merced				
Residents	13,538	13,207	15,804	16,177
Nonresidents	43,292	28,309	45,558	31,279
Riverside				
Residents	13,853	13,584	15,626	17,379
Nonresidents	43,607	28,686	45,380	32,481
San Diego				
Residents	14,415	13,455	16,455	17,355
Nonresidents	44,145	28,557	46,209	32,457
San Francisco				
Residents	n/a	12,939	n/a	18,409
Nonresidents	n/a	28,041	n/a	33,511
Santa Barbara				
Residents	14,391	13,554	17,928	17,352
Nonresidents	44,145	28,656	47,682	32,454
Santa Cruz				
Residents	13,991	13,808	17,009	18,665
Nonresidents	43,745	28,910	46,763	33,767

¹ Total charges include mandatory systemwide charges (i.e., Tuition and the Student Services Fee totaling \$12,570), campus-based fees, and, where applicable, Nonresident Supplemental Tuition and/or health insurance as estimated in July 2019.

Appendix Display 15: 2019-20 Total Charges for Professional Degree Students by Program and Campus

	<u>Professional Degree Supplemental Tuition</u>		<u>Total Charges¹</u>	
	Residents	Nonresidents	Residents	Nonresidents
Applied Economics and Finance				
Santa Cruz	\$8,838	\$8,838	\$27,596	\$39,841
Architecture				
Los Angeles	9,492	9,492	26,761	39,006
Art				
Los Angeles	8,478	5,298	25,762	34,827
Biomedical and Translational Science				
Irvine	12,147	12,147	31,459	43,704
Biotechnology Management				
Irvine	13,890	12,918	31,576	42,849
Business				
Berkeley	48,262	38,222	67,680	69,885
Davis	27,036	27,036	45,580	57,825
Irvine	28,362	24,132	46,063	54,078
Riverside	29,158	29,158	46,655	58,900
San Diego	33,948	25,218	51,406	54,921
Civil and Environmental Engineering				
Berkeley	6,490	12,654	25,908	44,317
Dentistry				
Los Angeles	27,720	25,668	46,592	56,785
San Francisco	31,968	31,968	50,420	62,665
Development Practice				
Berkeley	19,924	19,924	39,342	51,587
Educational Administration/Leadership				
Berkeley (Ed.D.)	8,000	8,000	32,125	44,370
Berkeley (M.A.)	6,000	6,000	25,418	40,312
Davis (Ed.D.)	4,542	4,542	23,086	35,331
Engineering (M.Eng.)				
Berkeley	33,700	27,100	53,118	58,763
Engineering Management				
Irvine	14,583	14,583	32,269	44,514
Environmental Science and Engineering				
Los Angeles	7,998	7,998	25,267	37,512
Games and Playable Media				
Santa Cruz	9,051	9,051	27,809	40,054
Genetic Counseling				
Irvine	11,487	11,487	29,173	41,418
Health Informatics				
Davis	7,440	7,440	25,984	38,229
Information Management				
Berkeley	8,264	8,264	27,682	39,927
International Affairs				
San Diego	9,510	9,510	26,818	39,063

¹ Total charges include estimated campus-based fees and health insurance. Total charges also include mandatory systemwide charges (i.e., Tuition and the Student Services Fee totaling \$12,570); Professional Degree Supplemental Tuition; and Nonresident Supplemental Tuition, disability, and other fees where applicable.

Appendix Display 15 (continued): 2019-20 Total Charges for Professional Degree Students by Program and Campus

	<u>Professional Degree Supplemental Tuition</u>		<u>Total Charges¹</u>	
	Residents	Nonresidents	Residents	Nonresidents
Journalism				
Berkeley	\$7,876	\$7,876	\$27,542	\$39,787
Law				
Berkeley	37,800	28,884	57,218	60,547
Davis	35,890	32,748	54,404	63,507
Irvine	34,136	27,954	51,822	57,885
Los Angeles	34,136	27,954	52,309	58,372
Medicine				
Berkeley	23,079	23,079	41,302	53,547
Davis	23,084	23,084	46,295	58,540
Irvine	23,085	23,085	40,862	53,107
Los Angeles	24,932	24,932	42,262	54,507
Riverside	23,988	23,988	41,557	53,802
San Diego	23,535	23,535	40,884	53,129
San Francisco	23,079	23,079	41,532	53,777
Management				
Merced	21,000	21,000	40,521	52,766
Natural Language Processing				
Santa Cruz	20,000	20,000	40,393	52,638
Nursing				
Davis	12,186	12,186	30,730	42,975
Irvine	12,186	12,186	31,454	43,699
Los Angeles	12,186	12,186	29,455	41,700
San Francisco	12,186	12,186	30,580	42,825
Optometry				
Berkeley	19,026	18,468	38,444	50,131
Pharmacy				
San Diego	25,494	25,494	42,802	55,047
San Francisco (3-yr program)	30,352	30,352	52,628	64,873
San Francisco (4-yr program)	22,764	22,764	41,032	53,277
Physical Therapy				
San Francisco	12,975	12,975	35,991	48,236
Preventive Veterinary Medicine				
Davis	6,060	6,540	24,604	37,329
Product Development				
Berkeley	29,400	29,400	48,818	61,063
Public Health				
Berkeley	9,230	9,230	28,648	40,893
Davis	8,343	8,343	28,648	40,893
Irvine	7,164	7,164	24,850	37,095
Los Angeles	7,200	7,656	24,484	37,185
Public Policy				
Berkeley	10,236	11,062	29,797	42,868
Irvine	7,596	7,596	25,282	37,527
Los Angeles	9,303	9,924	26,572	39,438
Riverside	5,952	5,952	23,460	35,705
San Diego	9,510	9,510	26,818	39,063
Serious Games				
Santa Cruz	9,510	9,510	27,809	40,054

¹ Total charges include estimated campus-based fees and health insurance. Total charges also include mandatory systemwide charges (i.e., Tuition and the Student Services Fee totaling \$12,570); Professional Degree Supplemental Tuition; and Nonresident Supplemental Tuition, disability, and other fees where applicable.

Appendix Display 15 (continued): 2019-20 Total Charges for Professional Degree Students by Program and Campus

	<u>Professional Degree Supplemental Tuition</u>		<u>Total Charges¹</u>	
	Residents	Nonresidents	Residents	Nonresidents
Social Welfare				
Berkeley	5,090	5,090	24,508	36,753
Los Angeles	6,831	7,332	24,100	36,846
Statistics				
Berkeley	\$19,144	\$21,878	\$38,561	\$53,541
Teacher Education				
Berkeley	6,000	6,000	25,418	37,663
Technology Management				
Santa Barbara	34,980	34,980	52,392	64,637
Theater, Film & Television				
Los Angeles	12,168	12,168	29,437	41,682
Translational Medicine				
Berkeley (Jt. UCSF)	34,464	34,464	52,392	64,637
Urban and Regional Planning/Environmental Design				
Berkeley	7,190	7,190	26,608	38,853
Irvine	6,489	6,489	24,175	36,420
Los Angeles	7,521	8,076	24,790	37,590
Veterinary Medicine				
Davis	16,062	16,062	37,130	49,375

¹ Total charges include estimated campus-based fees and health insurance. Total charges also include mandatory systemwide charges (i.e., Tuition and the Student Services Fee totaling \$12,570); Professional Degree Supplemental Tuition; and Nonresident Supplemental Tuition, disability, and other fees where applicable.

Index

- Academic quality, 28-30
- Academic support, 99-100
- Activity-based Costing, 172
- Admission to UC, 38-42
- Administrative efficiencies, 116
- Agricultural Experiment Stations (AES), 79-81, 91
- Agriculture and Natural Resources (UC ANR), 79-81, 90-93
- American Recovery and Reinvestment Act (ARRA), 71-77, 164-165, 180
- Annuitant benefits, 165, 174
- Articulation agreements, 88
- ASSIST, 88-89, 178
- Auxiliary enterprises, 17, 117, 119, 141-144, 147, 175-177, 179
- Behavioral Health Centers of Excellence, 79
- Blue and Gold Opportunity Plan, 132
- Bookstores, 142-142
- Budget cuts,
 - Campus actions to address budget cuts, 166
 - History of UC budget, 159-174
- Budget framework with the Governor, 25-26, 168-169
- Cal Grants, 19, 134, 137, 167-168
- California Digital Library, 98
- California Institutes for Science and Innovation, 69-70, 75-76
- California Master Plan for Higher Education, 13, 36-48, 129
- California State Summer School for Mathematics and Science (COSMOS), 90, 163
- California Subject Matter Project, 89
- Campus-based fees, 107, 126, 128-129
- Capital renewal, 119-121
- Clinical teaching support, 104
- Commission on the Future, 40
- Community College Articulation Agreements (see Articulation agreements)
- Community College transfer eligibility and admission, 40-42
- Community College Transfer Preparation (CCTP)
 - Programs, 80-89, 94-95, 178
- Compact, 115, 150, 159-160, 162-164, 174
- Compensation, 147-155
- Cooperative Extension (UCCE), 79-81, 91-93
- Core funds, 11, 17-18
- Costs,
 - Cost of attendance and student fees, 27, 127, 132-137, 163
 - Cost of living adjustments, COLAs (see General Range Adjustment)
- Energy costs, 27, 82-83, 122-124
 - Federal indirect cost reimbursement, 21
 - Debt service payments, 17, 125, 145, 167, 171-173
- Deferred maintenance, 19, 79, 119-121, 130, 159, 169, 171-174
- Department of Energy Laboratories, 17, 73-74, 82, 157-158
- Diversity, 26, 30-34, 43-44
- Drew University of Medicine and Science, 85, 93-94
- EAOP, 87-88, 178
- Education Financing Model, 135-136
- Eligibility for admission, 39-41
- Employee benefits, 151-155
- Endowments, 17, 22-23, 85, 175-177
- Energy efficiency, 82-83, 123-124
- Enrollment,
 - General campus, 36-46, 181-182
 - Undergraduate student, 36-43
 - Graduate student, 43-44
 - Health sciences, 53, 58, 181
 - Nonresident, 42-43
 - Summer sessions, 50-51, 59-60
- Equity compensation increases, 147-150
- Facilities needs, 120-124
- Faculty honors and awards, 12
- Faculty housing, 141
- Faculty salaries, 35, 148-149
- Federal economic stimulus funds (ARRA), 71-72, 164-165, 180
- Federal funding,
 - Financial aid, 131, 133, 139-140
 - Research, 20-21, 67, 70-73
- Federal indirect cost reimbursement, 21
- Federal research awards, 7, 74-75
- Fees (see Student Tuition and Fees)
- Financial aid,
 - Cal Grants, 19, 134, 137, 167-168,
 - Federal funding, 20-21, 131-132, 133-134, 139-140
 - Graduate student support, 137-139
 - Institutional support (University Funds), 133-134
 - Other sources of support, 139-140
 - Pell Grant recipients, 20-21, 131, 134
 - Policy, 131, 135-137
 - Private support, 131, 134
 - Professional school student aid, 139
 - Undergraduate support, 134-137
- Freshman eligibility and admission, 38-40
- Funds,
 - Core funds, 11, 17-18
 - Federal funding, 20-21, 50-51, 43, 61, 70-73, 131-132, 133-134, 139-140
 - Medi-Cal funds, 20, 101-102
 - Medicare funds, 20, 101-102, 155
 - State General Funds, 17
 - State Special Funds, 22
 - UC General Funds, 17-18
 - Furlough (Salary Reduction Plan), 150
- General campus instruction, 35-52
- General Range Adjustment, 147-150

Graduate and Professional School Preparation programs, 89, 178
 Graduate student support, 137-139
 Graduation rates, 25, 29-30
 Health sciences enrollments, 181
 Health sciences instruction, 53-58
 Healthcare reform, 57
 History of student fees, 130
 History of UC budget, 159-174
 Housing, Student, Faculty and Staff, 141
 Integrated Capital Asset Management Program (ICAMP), 121
 Institute of Transportation Studies, 76
 Institutional support for financial aid, 133-134
 Instructional equipment replacement, 36
 Invention disclosures, 64
Kashmiri lawsuit, 184
 Labor research, 81
 Lease revenue bond payments, 162, 164, 167
 LGBT Advisory Council, 112
 Libraries, 95-98
Luquetta lawsuit, 184
 Maintenance of new space, 120, 163
 Marginal cost of instruction, 36-37, 120, 128, 163
 Market and equity compensation increases, 147-150
 Mathematics, Engineering, Science Achievement (MESA), 87-89, 178
 Medical Centers, 17, 101-106
 Medi-Cal funds, 20, 101-102
 Medicare funds, 20, 107-109, 155
 Merced campus, 48-50
 Merit salary increases, 147-150, 163
 Multicampus Research Programs and Initiatives (MRPIs), 70, 76-77
 Natural Reserve System, 61, 63, 76, 77-79, 83
 Nonresident enrollment, 42-43
 Nonresident Supplemental Tuition, 18, 125-128, 130, 132-134, 138, 139-140
 Non-salary price increases, 155, 163
 Nursing, 57-58
 Online Instruction, 51-52
 Open Access Policy, 97
 Operation and maintenance of plant (OMP), 119-124
 Support for new space, 120
 Outreach (see Student Academic Preparation and Educational Partnerships)
 Parking, 141, 143
 Patent revenue, 23-24
 Pell Grant recipients, 20-21, 131, 134
 Pension benefits, 152-154
 Persistence rates, 29
 Presidential initiatives and programs,
 Carbon Neutrality, 27
 Cyber Security, 27
 Diversity Pipeline, 26
 Food, 27
 Historically Black Colleges and Universities (HBCU), 26, 33, 44, 62
 Housing, 27, 142
 President's Postdoctoral Fellowship Program (PPFP), 33, 26, 44
 Public service law fellowships, 26
 Task Force on Preventing and Responding to Sexual Violence and Sexual Assault, 27
 UC-Mexico, 27
 Undocumented students, 26, 111-112
 Price increases, 96, 145, 147
 Private support, 17, 22-23, 73, 134, 179
 Professional Degree Supplemental Tuition, 18, 53-54, 126-130, 133, 139
 Financial aid, 139-140
 Programs In Medical Education (PRIME), 33, 54, 56-57
 Public service, 85-94
 Puente, 88-89, 178
 Purchased utilities, 119, 123
 Research, 61-84
 Retirement contributions, 152-155
 Return-to-aid, 133-134, 139
 Riverside Medical School, 54-56
 Salaries, 147-150
 Self-supporting degree programs, 60
 State Agency Agreements, 21, 70, 176-177
 State General Funds, 11-12, 17
 State Special Funds, 22
 Student Academic Preparation and Educational Partnerships (SAPEP), 33, 85-89, 178
 Funding, 87, 178
 History, 86
 Student-faculty ratio, 28-29, 37, 53
 Student Health Insurance Plan (UC SHIP), 110
 Student Mental Health Services, 108-110
 Student services, 107-114
 Student Tuition and Fees, 125-130
 Campus-based fees, 126, 129
 Comparison institutions, 125
 Course Materials and Services Fees, 129
 History, 130
 Nonresident Supplemental Tuition, 18, 125-128, 132-134, 138, 139-140
 Professional Degree Supplemental Tuition, 18, 53-54, 126-130, 133, 139
 Student Services Fee, 18, 107-109, 126-127, 129-130
 Tuition, 17-19, 125-130
 Student Veterans Advisory Council, 112
 Summer instruction, 50-51
 Task Force on Preventing and Responding to Sexual Violence and Sexual Assault, 27
 Teaching hospitals, 101-106
 Technology transfer, 64-65
 Time to degree, 30
 Transfer eligibility and admission, 40-41
 Transfer Pathways, 41
 UC Memorandum of Understanding with the California Community Colleges, 40-41
 Tuition, 17-19, 125-130
 Total remuneration, 148-149

UC Agriculture and Natural Resources (see Agriculture and
Natural Resources)
UC Cooperative Extension (see Cooperative Extension)
UC General Funds, 17-18
UC Office of the President, 116
UC Retirement Plan (UCRP), 152-155
Undergraduate support, 134-137
University Extension, 20, 59, 175-176
University Opportunity Fund, 21



University of California
Office of the President
Budget Analysis and Planning
1111 Franklin Street, 6th Floor
Oakland, California 94607
(510) 987-9113
www.ucop.edu/operating-budget

