UNIVERSITY OF CALIFORNIA

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO

SANTA BARBARA • SANTA CRUZ

1111 Franklin Street
Oakland, California 94607-5200
Phone: (510) 987-9074
Fax:(510) 987-9086
http://www.ucop.edu

February 17, 2015

Director Michael Cohen
Department of Finance
915 L Street
Sacramento, California 95814

The Honorable Mark Leno
Chair, Joint Legislative Budget Committee
1020 N Street, Room 553
Sacramento, California 95814

Dear Director Cohen and Senator Leno:

Pursuant to Section 92670 of the Education Code of the 2014 Budget Act, enclosed is the University of California's final report to the Legislature and the Department of Finance on Expenditures for Instruction.

If you have any questions regarding this report, Associate Vice President Debora Obley would be pleased to speak with you. She can be reached by telephone at (510) 987-9112, or by email at Debora.Obley@ucop.edu.

Yours very truly,

Janet Napolitano
President

Enclosure

cc: Senate Budget and Fiscal Review
The Honorable Marty Block, Chair
Senate Budget and Fiscal Review Subcommittee #1
(Attn: Ms. Anita Lee)
(Attn: Ms. Cheryl Black)
Assembly Member Kevin McCarty, Chair
Assembly Budget Subcommittee #2
(Attn: Mr. Mark Martin)
(Attn: Ms. Amy Rutschow)
Ms. Peggy Collins, Joint Legislative Budget Committee
Ms. Amy Leach, Office of the Chief Clerk of the Assembly
Mr. Jim Lasky, Legislative Counsel Bureau
Mr. E. Dotson Wilson, Chief Clerk of the Assembly
Mr. Danny Alvarez, Secretary of the Senate
Ms. Tina McGee, Legislative Analyst's Office
Mr. Mac Taylor, Legislative Analyst's Office

Mr. Paul Golaszewski, Legislative Analyst's Office
Mr. Jeff Bell, Department of Finance
Mr. Christian Osmena, Department of Finance
Ms. Jillian Kissee, Department of Finance
Executive Vice President and Chief Financial Officer Nathan Brostrom
Provost and Executive Vice President Aimée Dorr
Senior Vice President Nelson Peacock
Vice President Pamela Brown
Associate Vice President and Director Steve Juarez
Associate Vice President Debora Obley
Executive Director Jenny Kao
Deputy Marsha Sato
Manager Bruce Kennedy

Office of the President
February, 2015

UNIVERSITY OF CALIFORNIA

Expenditures for Undergraduate and Graduate Instruction and Research Activities

EXECUTIVE SUMMARY

California's forward-thinking public investments in higher education have fueled economic prosperity, social mobility, and cultural opportunities for decades. The State's historic commitment has enabled the University of California not only to educate nearly 250,000 students in 2014-15 alone, but to better the lives of every Californian through its cutting-edge research, medical innovation, and agricultural advancement to name only a few of UC's pursuits.

This report provides information on expenditures for educational activities as requested by the Governor and the Legislature in AB 94 (statutes of 2014). The University has reported annually the Average Expenditures for Instruction using a calculation developed by UC, California State University, the California Community Colleges, and the California Postsecondary Education Commission (CPEC), and believes this methodology to be reliable and accurate. The University traditionally has received its funding on an average basis and does not delineate spending by level of student or by discipline, making it challenging to report expenditures by those categories.

To respond to the AB 94 Cost of Instruction language, UC developed a methodology to address the challenge presented by the fact that the University's accounting and information systems do not readily allow for the disaggregation of educational expenditures as requested by AB 94. The University studied two prominent methods employed to estimate costs of instruction, the NACUBO and Delta Cost Project, before developing a methodology based in part on reasonable assumptions and proxies for actual data. These calculations use functional expense categories reported in published financial statements and identify expenditures that can be considered **direct expenditures** on education (e.g., instruction, academic support), as well as **indirect expenses** (e.g., institutional support, maintenance, depreciation).

This data must be considered in the context of certain factors, which include the complexity of health sciences instruction; the multiple roles of graduate students at a public research university; and the laboratory and equipment costs associated with many disciplines, including the STEM fields, across all levels of students.

INTRODUCTION

The passage of AB 94 in 2014 represented a departure from prior reporting methodology. Rather than reporting an average, AB 94 requires that expenditures be identified by level of student, as well as by science, technology, engineering, and mathematics (STEM) fields and health sciences. Because State General Funds, tuition and fees, and UC General Funds are not provided to the University by level of student or by discipline, the University does not separate its expenditures by level of student or discipline. Attempting to account for funding according to level of student and by discipline has been a challenge given that UC's accounting and information systems align with the way UC actually is funded.

Furthermore, the data requested by AB 94 in this report records the University's actual expenditures. This does not equate to the costs required for UC to deliver a top-flight education to its students.

The University of California's long tradition of excellence rests on access, affordability, and quality. Thus, the State's investment in UC has enabled hard-working, highly qualified students to receive an education taught by world-class faculty, comparable to those at elite private universities, and irrespective of social background or economic situation. It is this partnership among the State, UC, and students that provides access to an elite education at a public price, particularly for an increasingly diverse student population.

In its latest college survey, *Washington Monthly* recognized UC's distinctive combination of public service, diversity, and academic excellence. As the magazine's editors wrote:

> "Strikingly, four of the top five institutions on our list are University of California campuses. . . The state's system has a distinct blend of size, diversity, and research excellence. By enrolling top students from a huge state with a highly varied population, UC campuses are able to balance academic excellence with scientific prowess and a commitment to enrolling low-income students that is unmatched at similar national universities."

The University of California's mission is tripartite, encompassing teaching, research, and public service.

- **Teaching.** UC serves undergraduate, graduate academic, and graduate professional students, and is the public segment primarily responsible for awarding the doctorate and many professional degrees.
- **Research.** UC is the primary State-supported academic agency for research, which is inextricably linked with graduate level teaching and a critical component of undergraduate education for many disciplines. Research creates a vital link between UC and the private sector, fosters the development of new knowledge and innovation leading to new industries and jobs. It also leverages roughly $3 billion in direct and indirect federal funding each year. For every State dollar spent to support research, another $7 is generated from non-State fund sources.
- **Public Service.** UC contributes to the well-being of communities, the state, and the nation through a variety of activities, including academic preparation and professional development programs for K-12 students and teachers, Cooperative Extension, and delivery of health services statewide. UC's public service programs allow policy makers to draw on the expertise of UC's faculty and staff to address public policy issues of importance to the state and society at large.

State support for UC is crucial to achieving excellence in teaching and research and in turn delivers a significant return on investment for both the University and the State.

- **UC promotes social mobility**: 42% of undergraduates are Pell recipients, meaning they come from families where annual household incomes are less than $50,000. They have six-year graduation rates comparable to non-Pell recipients (82% to 84%), and the majority earns more than their families five years after graduation.
- **UC undergraduate graduation rates continue to improve**: four-year freshman graduation rates have increased 17 points to 63% and two-year transfer graduation rates have increased 18 points to 55% in the last 12 years. The six-year freshman graduation rate is 83% and the

four-year transfer graduation rate is 86%, as compared to 78% for public institutions among the American Association of Universities[1] (AAUs) and 91% for private AAUs.

- **UC produces the largest proportion of STEM degrees in the state:** UC provides 39% of all STEM degrees in California (both undergraduate and graduate), compared to 33% for the California State University and 29% for private institutions.
- **UC tops global and national rankings:** UC Berkeley is ranked #3 internationally by the Shanghai rankings of all universities, and three other UC campuses appear in the top 20; no other public universities are ranked in the top 20. In *US News and World Report's* rankings of top U.S. public universities, six of the top 11 are UC campuses.
- **UC degree recipients contribute to California's workforce:** bachelor recipients work across California industries, particularly health care, education, engineering, and manufacturing. STEM graduates are concentrated in engineering services and manufacturing. Professional programs prepare graduates for careers in business, health sciences, and law.
- **UC benefits California's economy**: UC annually generates about $46.3 billion in economic activity in California and contributes about $32.8 billion to the gross state product (the value of all goods and services produced in the state).
    - Every dollar a California taxpayer invests in UC results in $9.80 in gross state product and $13.80 in overall economic output.
    - UC attracts about $8 billion in annual funding from outside the state.
- **UC contributes to the state's health care system:** UC's five academic medical centers prepare future generations of health professionals, while serving as the State's fourth largest health care delivery system, providing half of all transplants, treating low-income or uninsured patients, and serving as California's Ebola health care centers.

HISTORIC METHODOLOGY FOR REPORTING EXPENDITURES FOR INSTRUCTION

Decades ago, the State not only directly funded UC enrollment, but also based its funding on level of student. This practice ended during the fiscal crisis of the early 1990s. At that time, the State began to allocate State General Funds for UC enrollment on an average basis – i.e., one number for both undergraduate and graduate students – discontinuing the practice of using weighted enrollments to fund UC workload. Since that time, the University has neither received funding differentiated by student level, nor spent funding in that manner. These changes, as well as the standard accounting principles that UC follows contribute to the difficulty in reporting expenditures on a differentiated per-student basis, as requested by AB 94.

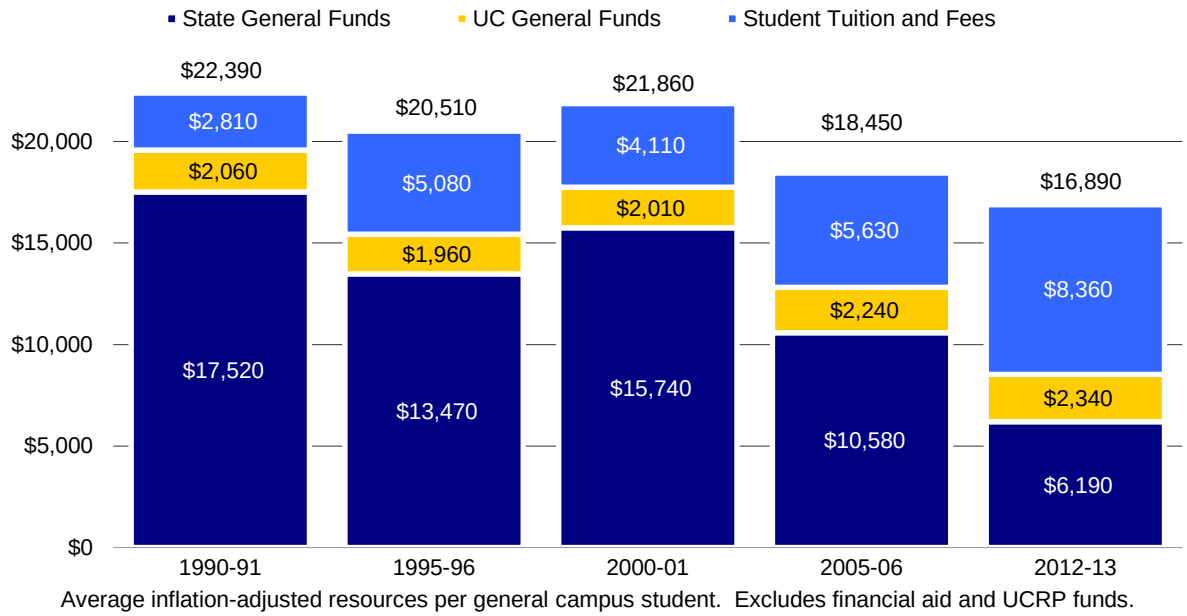
The University has reported for more than a decade a calculation known as Average Expenditures for Instruction. These calculations are based on a long-standing methodology developed by UC, CSU, CCC, and the former California Postsecondary Education Commission (CPEC) to identify resources available to support basic educational costs for general campus programs (as opposed to the health sciences). This average expenditures calculation is a systemwide average of actual expenditures (what was spent, rather than the cost of programs and services) per general campus student for the instructional program and associated support activities. The calculation is limited to UC "core funds," which consist of State General Funds, revenue from student tuition and fees, and UC General Funds (primarily nonresident supplemental tuition). The figure represents the estimated total funding from core funds on a per-

[1] AAU is an association of major research universities that represent the most productive and successful research universities in the country and whose membership is by invitation only.

student basis that is available to support instruction (faculty salaries and benefits, instructional support, instructional equipment and technology) and other activities such as libraries, student services, administration, and operation and maintenance of facilities. It excludes financial aid, which is treated in the standard CPEC methodology as an expenditure to support access, not as an expenditure to provide the instructional program. Health sciences instruction, research, and public service expenditures, as well as related expenses for support activities, are excluded. This methodology is consistent, easily replicable, minimizes the use of assumptions and proxies, and is considered by UC to be a more reliable and accurate reflection of expenditures for instruction and preferable to the calculation required by AB 94.

In 2012-13, the average expenditure figures for students based on the actual expenditures for the general campus instructional program and its support activities totaled $16,890, composed of $8,360, or 49%, student fees; $2,340, or 14%, UC General Funds; and $6,190, or 37%, State General Funds (see Display 1).

Display 1: Per-Student Average Core Funds Expenditures for Education (2012-13 dollars)



Average inflation-adjusted resources per general campus student. Excludes financial aid and UCRP funds.

UC continues to believe this negotiated methodology is the best one for reporting expenditures for education. For purposes of the level of detail requested in AB 94, however, this methodology would not permit a break out by STEM majors, for example, and could not be responsive to the request for health sciences information, so UC developed a methodology specific to the requirements of AB 94. In doing so, UC also recognized that reporting expenditures by level of student could reflect a narrow definition of instruction that includes only the direct and indirect expenditures associated with actually instructing students in classroom and laboratory settings. Alternatively, a broader calculation, more accurate, would include those costs as well as the costs of providing a diverse and comprehensive learning community, where students live on campus and experience the depth and breadth of intellectual, social, and cultural opportunities offered at the University of California. This report addresses both interpretations of this question.

The difference between "cost of education" and "expenditures for education" is important. This report reflects expenditures for education – what the University actually spent for the activities and programs included in this report during 2012-13. The University believes that in the long term, a reinvestment will be required that allows for expenditures to address budgetary shortfalls that have led to high student-faculty ratios; large market gaps in faculty salaries; and chronic underfunding of critical academic support areas such as instructional technology, instructional equipment replacement, and ongoing building maintenance. A later section of this report addresses the issue of cost of education by describing these shortfalls.

UC Explored Other Nationally-Recognized Options

The University explored other respected organizations' current methods for estimating the cost of instruction at other institutions. Two prominent examples include:

- **NACUBO**. The National Association of College and University Business Officers (NACUBO) conducted a project to develop a common methodology for calculating the cost of an undergraduate education at the full range of colleges and universities around the country. The NACUBO methodology takes expenses for instruction, academic support, student services, operation and maintenance of plant, depreciation and amortization, public service, institutional support and student financial aid divided by a weighted student FTE (undergraduate FTE plus a graduate FTE that is weighted 1.25 to reflect the greater expenditures needed for graduate students as compared to undergraduates). While this calculation is similar to the calculation used in the University's model, the University disagreed with certain assumptions in the calculation, including the weighting of graduate students. A full description of the NACUBO Cost of College Study can be found at (http://www.nacubo.org/documents/research/cofcfinalreport.pdf).

- **Delta Cost Project**. The Delta Cost Project (http://www.deltacostproject.org/) uses standardized IPEDS (Integrated Postsecondary Education Data System) data sources to calculate six metrics of spending, revenues, productivity, and enrollment in higher education institutions. One of the measures – education and related (E&R) costs – includes all spending for instruction and student services, plus a portion of spending on academic and institutional support and for operations and maintenance of buildings. It includes spending from all revenue sources for all students, including undergraduates, graduates, and others, and for all courses of instruction across types of disciplines, and thus represents average institutional spending across these categories.

While these methodologies have the advantage of allowing comparisons with other institutions and in some cases are already familiar on a national basis, elements of these models do not adequately capture expenditures for instruction at the University of California. Within any institution, there can be considerable variations in costs within this average, with lower spending on average for undergraduates than graduates, as well as considerable variation by discipline. The Delta methodology does not provide a way to disaggregate by level or discipline. Below is an explanation of the approach used by UC.

Factors UC Considered in Developing Its Reporting Methodology

UC follows generally accepted accounting and budgeting practices and has information systems designed around highly diversified campuses that are complex, decentralized entities. As noted earlier, the University's accounting and information systems do not readily allow for the disaggregation of educational expenditures requested in the AB 94 language and funding is neither appropriated to the University of California by level of student nor by discipline, nor spent that way on the campuses. Faculty are paid to teach both undergraduate and graduate students as well as perform other functions related to the research and public service missions of the University and their salaries are not apportioned across these activities. Similarly, staff perform support functions affecting students of all levels and disciplines. These expenses are not categorized on the basis of what level of student may benefit or their field of study. An added complication arises when attempting to determine costs in STEM fields, as all undergraduate and graduate students take courses in both STEM and non-STEM disciplines.

Calculating Expenditures for Instruction. The University's method for calculating instructional expenditures by all the categories requested is based on reasonable assumptions and proxies for actual data, which are delineated below. These calculations leverage functional expense categories reported in published financial statements and identify expenditures that can be considered **direct expenditures** on education (e.g., instruction, academic support) as well as **indirect expenses** (e.g., institutional support, maintenance, depreciation).

Undergraduate Instruction Serves a Large Student Body and is Highly Diversified. Undergraduates make up approximately 80% of UC's student population. At UC, the undergraduate educational experience is enormously varied and shaped by many factors: campus location; major; the combination of co-curricular activities including social, athletic, and other extracurricular activities; and other educational opportunities provided at a campus (e. g., museums and cultural activities). Some common features are nonetheless apparent. UC's faculty have intentionally designed a curriculum that builds foundational skills that enable a student to master a field of knowledge and progress systematically to engage in critical and creative independent work. The curriculum purposely brings students into contact with pioneering research and the people who do it. It is also highly regarded by students; a significant majority of them report that their analytic and critical thinking skills, their ability to write clearly and effectively, and their understanding of a specific field of study have all increased significantly during their undergraduate years.

Graduate Instruction Is Critical to Meeting University and State Workforce Needs

Graduate education and research at the University of California have long fueled California's innovation and development, helping establish California as one of the 10 largest economies 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. However, over the past 30 years, while well-justified attention has been paid to accommodating undergraduate enrollment growth, graduate enrollment growth has lagged. Graduate students are essential to a research university, making it possible to attract and retain excellent faculty. They are also essential to California's economy, entering the workforce as experts in knowledge-based fields that fuel the State's economic engine. Companies in knowledge-based industries tend to cluster around major universities to access the pool of specialized workers and to benefit from knowledge transfers inherent in the concentration of research, innovation, and specialization. Computer science and medical research at the Berkeley and San Francisco campuses, for example, have helped propel the Bay Area to global

leadership in the high-tech and biotech industries. According to a 2003 study, about one-fourth of all biotech firms in the U.S. are located within 35 miles of a UC campus. Moreover, having too small a proportion of graduate students threatens UC's distinctive research-oriented undergraduate instruction, since graduate students often give undergraduates first-hand exposure to research, help teach them in the classroom, and evolve as mentors.

While fewer of UC's students are at the graduate level, they require more intensive faculty effort. Classes for graduate students are smaller and in most cases are taught by a ladder rank professor. Graduate students are closely mentored and trained by ladder faculty for leadership in both academic and applied fields.

UC graduate students fall into one of two categories: graduate academic and graduate professional. Graduate academic students are enrolled in programs that either conclude in a terminal master's degree or lead to a Ph.D., while graduate professional students are enrolled in programs that lead to a specific professional degree, such as a J.D., M.D., or M.B.A.

Accounting for Expenditures Associated with Graduate Students is Complex. A complication with the reporting called for in AB 94 arises with disaggregation of undergraduate and graduate education. Graduate students help teach undergraduates in the classroom and serve as mentors in undergraduates' classroom and research experiences. This poses several questions: should these costs be included in the expenditures for graduate education (as training for graduate students), or in the expenditures for undergraduate education (as essentially part of the teaching function for undergraduate education)? Graduate students, too, are integral to the research program and as such are part of the research enterprise cost structure. It is not clear how to isolate the expenditures related to each of these functions that graduate students perform since the activities are so interdependent.

Instruction at the University of California. Historically, the instruction category in the budget includes most of the direct instructional resources associated with the schools and colleges located on the general campuses, encompassing classroom and laboratory instruction, instructional technology, and joint scholarly research activities of students and faculty. Instruction is carried out on the general campus, in health sciences programs, and summer sessions[2]. Indirect costs necessary to support instruction must also be considered in any accounting of the cost of instruction – costs for building maintenance, library collections, and administration, as well as other activities that feed into but are not categorized in instructional budgets.

A fundamental, and perhaps the most visible, mission of the University is to educate students, from undergraduate to the most advanced graduate level, and to offer motivated students the opportunity to realize their full potential. 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. The University offers bachelor, master, and doctoral degrees in more than 750 instructional programs, from applied linguistics to astronomy and professional degrees in business, law, medicine, and other disciplines.

A Research University Differs from a Comprehensive University. UC is unique among the state's higher education segments in that it is California's public research university. What attracts students to a

[2] Other forms of instruction provided by UC, such as University Extension and self-supporting graduate degree programs, are excluded from the expenditure data presented.

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 the most recent University of California Undergraduate Experience Survey, 85% of respondents agreed that attending a university with world-class researchers was important, and over 60% of senior undergraduates had participated in research activities with faculty as part of their coursework. This close relationship between instruction and research, both at the undergraduate and graduate level, is the hallmark of a research university, as opposed to a comprehensive university that focuses more on undergraduate teaching and less on graduate education and research. Joint scholarly research activities of students and faculty are part of the instructional program at the University. Moreover, the research setting is where much of the training and education occurs for jobs in high-end, knowledge-based industries – these companies expect UC graduates to be well-trained on sophisticated techniques and protocols when they enter the job market. As such, instruction and research are inextricably linked at UC at all student levels.

UC Is Unique in Providing an Education Equivalent to a Top Private Institution in a Public Setting. In any discussion of costs, it is important to point out one of the defining characteristics of the University of California: UC provides the quality of a renowned private institution at the cost of a public institution. Achieving this result has been inherent in State decisions to invest in developing a top research university with wide public access. The California State University (CSU) system recently reported an average expense for instruction of $11,283 per student in 2012-13, compared to $16,890 for UC. In comparison, a private institution, such as Duke, estimates its cost of educating an undergraduate is around $90,000[3].

Public Universities Control Costs Better than Private Universities. Scholars have noted that higher education is one of the few sectors of the economy where public institutions control costs better than private institutions.[4] Largely as a result of their size, public research universities, like UC, have a different cost model and operate much more efficiently than their private counterparts. Class sizes tend to be larger and teaching loads therefore heavier, than in private universities. For example, recent Integrated Postsecondary Education Data System (IPEDS) data shows the average student-faculty ratio in public institutions that are members of the American Associate of Universities (AAU) was 17:1. Among private AAU members, the ratio was 9:1. (Currently, UC's student-faculty ratio is around 21:1.) Similarly, salaries for public research university faculty and staff are lower, on average, than at private institutions of similar caliber. According to data from the American Association of University Professors, faculty salaries in public universities average nearly 30% less than those at private universities. Public research university campuses also tend to have more utilitarian facilities and fewer student amenities. Because of all these factors, the cost model at public universities is substantially more efficient. A study conducted in 2007 by the National Center for Higher Education Management Systems (NCHEMS) ranked UC among the top three most productive public research universities relative to funding per faculty member, taking into account graduation rates, Ph.D. production, bachelor degree production, and research expenditures per full-time faculty member.

Research and Education Are Inextricably Tied Together at UC

[3] "Duke: $60,000 A Year for College Is Actually a Discount," National Public Radio, February 21, 2014 (http://www.npr.org/blogs/money/2014/02/14/277015271/duke-60-000-a-year-for-college-is-actually-a-discount)

[4] Ron Ehrenberg, "Why Public Institutions Control Costs Better than Private Institutions," in Tuition Rising, 2000, Harvard University Press, pages 23-26, cited by Henry Brady in "What's the Problem with Higher Education in California?" presentation at PPIC event "Higher Education Finance in California," Sacramento, Nov. 14, 2014.

UC creates an environment for learning and advancing human knowledge that stimulates its students to perform at the highest level of their intellectual capabilities during one of the most formative periods of their lives. The world's top scholars set high expectations for students' acquisition of new knowledge and methods of learning. UC students work among an academically stellar group of classmates who motivate one another to strive for excellence in education. They take advantage of some of the best minds in the world to learn experimentation, computing, and scholarly research. UC combines these elements to give motivated students the thinking skills that can be applied throughout their lives.

Many take for granted some of the most profound advances in human thought that have transformed our lives in the last century of civilization. Medicine, which previously advanced largely on empirical observations and trial and error, is becoming a predictive science based largely on the understanding of molecular physics discovered in the formulation of quantum mechanics 100 years ago. So, too, does modern electronics rely on our understanding of nanotechnology. The "information age" took as its foundation discoveries in mathematics that led to algorithms for capturing, encoding, transmitting, and decoding information.

Major discoveries that have transformed society emerged largely from our research universities. At the University of California, for example, medical research led to medical advances and dramatic improvements in the diagnosis and treatment of diseases, including a laser treatment for previously untreatable eye conditions; a nicotine skin patch to wean smokers off cigarettes; corrective surgery before birth for formerly fatal abnormalities; an inner-ear implant that enables the deaf to recognize tones and thus understand language; and a simple, inexpensive blood test to determine the risk of having a baby with Down syndrome. Such discoveries contribute profoundly to the long-term health and sustainability of our country. The unique training opportunities provided to our students who work side by side with some of our best intellects confers a great benefit to the individual students and to the exchange of ideas within society through the contributions students are able to make throughout their careers.

METHODOLOGY FOR REPORTING UNDER AB 94

Expenditures for Instruction – A Narrow Definition

For the narrow definition of direct expenditures on general campus instruction, the University included all expenditures categorized as instruction as well as those sub-components within academic support and student services related to instruction. To derive instruction's share of costs related to administration, operation and maintenance of plant, and depreciation, the University calculated instruction's share of these indirect expenditures by calculating the ratio of instruction divided by the sum of instruction, research, and public service, and applying this ratio to the indirect expenses (specifically, 77% of State General Fund expenditures for the indirect expenses are included in the model). Expenditures categorized as auxiliary enterprises or related to the University's medical centers were excluded from these calculations.

As noted earlier, in a research university, instruction, research, and public service are inextricably tied. Instruction is directly and indirectly enhanced by the faculty's research and public service endeavors and thus all of the faculty's base salaries are included in the calculation. Students choose to attend UC in large part to be taught by faculty directly engaged in the discovery and creation of new knowledge, and often to participate in that research themselves. The instruction of these students is enriched by the experience of the faculty teaching them. Because instruction, research, and public service are inextricably linked, all are equally important to the quality of the educational experience. Capturing all

of a faculty member's salary in the expenditures for instruction is intended to serve as a reasonable proxy for including research and public service activities related to instruction in lieu of identifying and quantifying the various activities captured directly in those functions. (Note that additional salary some faculty may earn for research conducted during the summer and funded by grants or other external sources is not included here.)

Calculating Expenditures for Instruction by Level of Student Requires a Different, More Complicated Methodology

Because the major expenditure for instruction is for faculty salaries, it is difficult to disaggregate expenditures between graduate and undergraduate students. Faculty teach courses for both types of students, and graduate students, in turn, provide instruction to undergraduate students in their role as teaching assistants. Faculty also spend substantial time mentoring graduate students, advising them and supervising their dissertations, and working with them in laboratory settings. In addition, at UC, more graduate students tend to be concentrated in more expensive STEM fields compared to undergraduates.

Thus, the University has not previously attempted to disaggregate expenditures for education by level of student because there are many confounding factors that either are not reflected in its accounting systems or are not easily quantified. For these reasons, the University has been reluctant to attempt to differentiate expenditures by level, as the number of assumptions, estimates, and proxies could result in unreliable estimates.

Methodology for the Narrow Definition of Instruction

For this report, the University developed a factor for differential expenditures by level that can be quantified. It is offered as one way to show the differential, but the University believes it is only a starting point for discussion and not a solid rationale for making policy decisions or allocating resources.

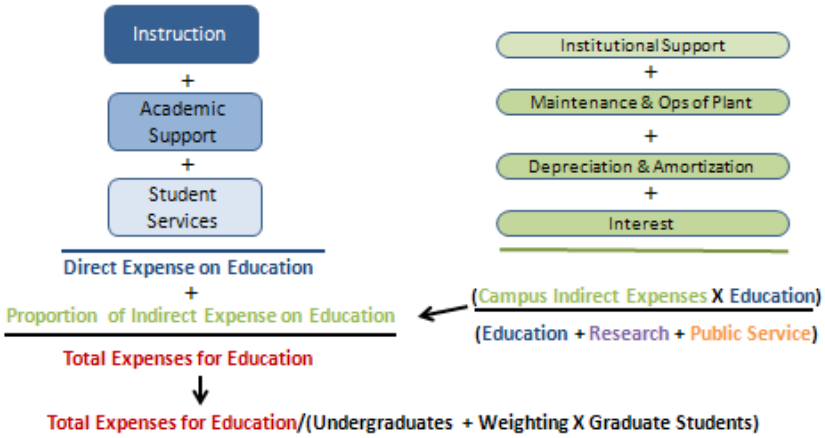
Graduate students for this calculation include all State-supported graduate academic and graduate professional students on the general campuses. Health sciences graduate students are excluded from this calculation. The methodology has two parts. First, graduate students are considered full-time when taking 12 units a term whereas undergraduates are full-time at 15 units per term. This is a standard practice in other institutions and is the basis for the ratio of 1.25 (15/12) used in the NACUBO report. Second, the University collects data on the proportion of student credit hours (SCH) offered by level and that data includes the type of instructor delivering the student credit hours. There is a substantial differential between undergraduate and graduate students in the proportion of SCH taught by ladder faculty. For graduate students, 79% of SCH are taught by ladder faculty compared to 49% for undergraduates. Since expenditures for ladder faculty are higher than for other types of faculty, expenditures by level of faculty can be used to estimate an overall differential between undergraduate and graduate expenditures. The estimate of the differential for 2012-13 is 1.33.

Combining these two factors – 1.25 for the FTE calculation times 1.33 for faculty type – results in an estimate that graduate expenditures per FTE for instruction are on average at least 1.7 times greater

than undergraduate expenditures[5]. The 1.7 differential represents a proxy for differences in other categories of expenditure.

The following diagram depicts the methodology used for the narrow definition of expenditures for instruction.

Display 2: University of California Expenditures for Instruction Model – Narrow Definition



The University is unable to break out expenditures for graduate professional programs as requested in AB 94. These are programs that are authorized to charge Professional Degree Supplemental Tuition in addition to mandatory systemwide tuition and fees. Most of these programs are housed within larger departments where expenditures are not differentiated by program. There is no reliable method for delineating these expenditures on a systemwide basis, nor is there a suitable proxy to use to estimate them. Therefore, the University is unable to respond to this portion of the request.

While the AB 94 language did not request total expenditures for instruction from all fund sources, the University has included this information in the report to demonstrate the significant contribution from other resources that are required to maintain the quality of the instructional effort at UC. This category includes such other sources as student fees that are not included in the University's core funds category (e.g. course materials fees), private indirect cost recovery, and the non-UC General Funds portion of indirect cost recovery. There are also extramural awards that support instruction, endowment, campus foundation, and gift funds.

While this is not an exhaustive list, it includes the major fund sources in this category. The amount of resources contributed from other non-core funds dramatically demonstrates the significant leveraging

[5] The 1.33 figure means that each student credit hour for a graduate student costs 33 percent more than for an undergraduate student. The 1.25 figure results from the fact that on an FTE basis, each student credit hour for each graduate student is worth 25 percent more. When multiplied, these two ratios yield 1.66, rounded to 1.7 above.

effect of the State's investment in the educational mission and the critical part State funds play in attracting other fund sources to the University.

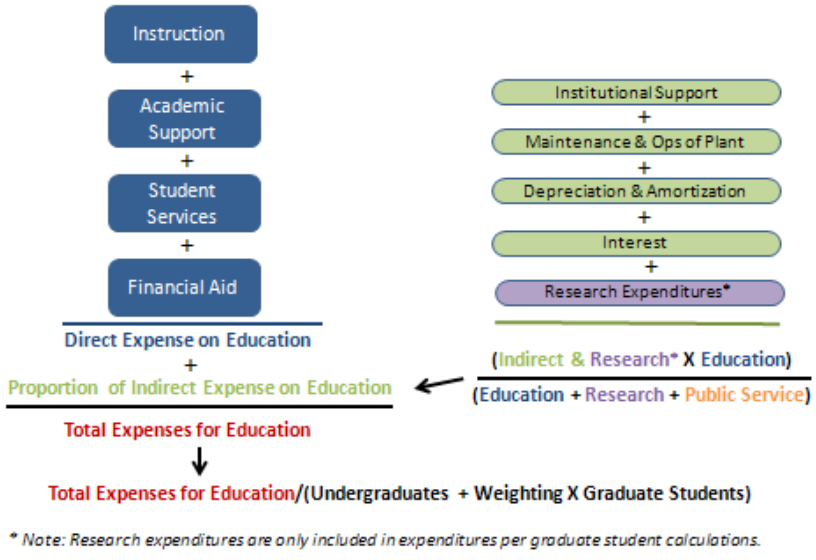
Table 1 :2012-13 Expenditures for Instruction (per student) – Narrow Definition

	State General Funds	Tuition and Fees	Nonresident Tuition	Other UC General Funds	Subtotal Core Funds	All Other Funds[6]	Total, All Funds
Blended Rate	$6,906	$7,309	$1,206	$866	$16,286	$7,871	$24,157
General Campus							
Undergraduate	$6,230	$6,600	$1,088	$781	$14,700	$7,100	$21,800
Graduate	$10,615	$11,200	$1,854	$1,331	$25,000	$12,100	$37,100

Methodology for the Broader Definition of Instruction

The broader definition of expenditures for education includes programs that were excluded from the narrower definition but contribute to the educational experience of UC students. For this calculation, all of academic support, student services, and financial aid are included. Academic support encompasses activities that support the primary missions of teaching, research, and public service, such as museums, libraries, optometry and dental clinics, academic administration, and demonstration schools, to name a few examples. Student support services enrich a student's social and cultural experience. Financial aid ensures access for lower income students. In addition, a portion of research expenditures is included as part of the indirect expenditures for graduate education. This is to recognize the critical role research plays in the training of graduate students. Graduate students work closely with faculty and other colleagues acquiring skills and training in protocols and research techniques, better preparing these students to enter the workforce in knowledge-based industries, an essential part of their education.

Display 3: University of California Expenditures for Instruction Model – Broad Definition



[6] "All Other Funds" includes sales and services revenue (exclusive of medical centers and auxiliaries revenues), government contracts and grants, private support, and other sources (including indirect cost recovery funds from research contracts and grants, patent royalty income, and management fees for Department of Energy labs).

Table 2: 2012-13 Expenditures for Instruction (per student) – Broader Definition

	State General Funds	Tuition and Fees	Nonresident Tuition	Other UC General Funds	Subtotal Core Funds	All Other Funds[7]	Total, All Funds
Blended Rate	$7,930	$8,878	$1,385	$995	$19,187	$14,112	$33,299
General Campus							
Undergraduate	$7,077	$8,000	$1,236	$888	$17,200	$12,040	$29,200
Graduate	$12,615	$13,700	$2,203	$1,582	$30,100	$25,700	$55,800

Methodology for Health Sciences Instruction

The University of California plays a critically important role in training health professionals to meet state needs. UC operates the largest health sciences instructional program in the nation. Collectively referred to as UC Health, this system includes 17 health professional schools on seven UC campuses – enrolling more than 14,000 students annually, as well as 10 hospitals operated by the UC medical centers – representing the fourth-largest health care delivery system in California. UC has a unique role as a public institution with obligations for doctoral level education as defined by California's Master Plan for Higher Education, as well as providing health care to Californians.

UC's health professional programs include schools of dentistry, medicine, nursing, optometry, pharmacy, public health, and veterinary medicine. The UC system is a nationwide leader in providing interdisciplinary opportunities for clinical and research experience, and in the preparation of future faculty and future leaders in research, the private sector, and public service. Across the health professions, UC programs provide an unparalleled integration of education, research, and patient care.

Health Care Provider Roles are Changing. Health care provider roles are increasingly complex, and patients approach health care issues with heightened expectations regarding treatment options. The California population is increasingly diverse, requiring providers to improve their cultural and linguistic competency. Changes such as these require that health sciences education cut across traditional, discipline-specific boundaries and increasingly emphasize interdisciplinary, culturally sensitive patient-centered care.

Funding for Health Sciences Instruction Is Highly Complex. To operate the instructional program, the health sciences schools require faculty, administrative and staff personnel, supplies, and equipment. Faculty requirements for instruction are linked to historic student-faculty ratios initially established for each profession and category of students enrolled. These lower student-faculty ratios 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. In general, there is a higher cost associated with clinically-intensive health sciences instruction, given the applicable national standards for quality and accreditation. Hiring clinical faculty is expensive and there are additional costs associated with clinical teaching programs – such as lower student-faculty ratios required for patient care activities and national accreditation standards with respect to clinical training and supervision of trainees to name only a few examples – that must prepare students to meet professional licensure

[7] See footnote 6.

standards. These are some of the facets that differentiate health science programs from other professional programs.

In addition, newer programs at UC founded to address critical needs in the state, for example UC Davis' Betty Irene Moore School of Nursing and UC Riverside's School of Medicine, face added budgetary challenges associated with "start-ups" and have insufficient or no State funding (e.g., to date, the UC Davis nursing program has not received State funding for enrollment, notwithstanding the enrollment of their first cohort of graduate students in fall 2010). However, UC is committed to providing all of its students with a high quality education, whether they opt to enroll at a long-standing school or one more recently established.

Because of the high costs associated with health sciences education, State support for these programs remains an important resource. As a result of substantial multi-year budget cuts, other revenue sources have become more essential. 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, and pharmacy are necessary to support UC instructional programs. During the State's fiscal crisis in the early 2000s, State support for UC's professional schools was substantially reduced and professional fees increased dramatically to offset lost State revenue. More recently PDST has increased in order to maintain quality and academic excellence as State support has further eroded.

There are Additional Pressures That Impact the Health Sciences. In California and nationally, health sciences education as an enterprise faces ongoing challenges. Among those concerns most relevant to UC are consequences of major, multi-year budget reductions; current and looming faculty shortages; ongoing challenges in keeping pace with the volume and complexity of health sciences knowledge and changes within the health care delivery system; faculty recruitment, retention and compensation; access to clinical training sites; and achieving demographic diversity.

Over the past decade, health sciences education has undergone fundamental adaptive changes to prepare health professionals to meet changing patient needs and expectations, and to practice more effectively within changing health care systems. The settings in which students are traditionally trained (i.e., academic health centers) increasingly do not reflect those in which they will eventually practice (e.g., outpatient, and managed care settings). UC campuses have had to revise their curricula and continue to expand programs to adapt to ongoing changes in the organization and delivery of health services. Case-based learning, small group instruction, ongoing curricular change, and use of technology and informatics prepare students to work in a variety of settings using integrative, interdisciplinary disease management models. The move away from lecture halls to small group instruction and ambulatory care settings, however, requires greater numbers of faculty and new and improved facilities for teaching.

The University's financial system separately reports expenditures for the instruction category for general campus and health sciences. Therefore, for that portion of the calculation for health sciences, direct expenditures were easily identified. However, expenditures associated with indirect costs related to health science instruction are not separated in the University's financial system and therefore, the University estimated these costs by calculating the proportion of health sciences faculty to all faculty, excluding the San Francisco campus (because all of San Francisco's expenditures are classified as health sciences and are captured in their entirety) and using that proportion as a proxy for estimating the health sciences share of indirect costs related to institutional support, academic support, and student

services. Health science expenditures in operation and maintenance of plant (OMP), depreciation, and interest were based on space use data in UC's Equipment, Facilities, and Assets (EFA) System. All health science expenditures are assumed to be for graduate education, given the very small number of undergraduate students in the health sciences.

Table 3.1: 2012-13 Expenditures for Health Sciences Instruction (per student) – Narrow Definition

	State General Funds	Tuition and Fees	Nonresident Tuition	Other UC General Funds	Subtotal Core Funds	All Other Funds[8]	Total, All Funds
Health Sciences	$40,075	$12,700	$6,999	$5,026	$64,800	$151,200	$216,000

Table 3.2: 2012-13 Expenditures for Health Sciences Instruction (per student) – Broader Definition

	State General Funds	Tuition and Fees	Nonresident Tuition	Other UC General Funds	Subtotal Core Funds	All Other Funds[9]	Total, All Funds
Health Sciences	$45,228	$14,200	$7,899	$5,673	$73,000	$269,500	$342,500

Methodology for STEM Disciplines

A similar methodology was used to report direct instructional expenditures for STEM disciplines within the Instruction function. The indirect expenditures in non-space-related functional areas (e. g., academic support, student services, etc.) were calculated using the proportion of student credit hours (SCH) in STEM courses rather than based on student major, since students of all majors take both STEM and non-STEM coursework. The expenditures in space-related functions – OMP, depreciation, and interest – follow standard industry estimates.

Expenditures per STEM versus non-STEM students are counterintuitively similar. While conventional wisdom is that the additional laboratory requirements for STEM majors must increase the cost on a per-student basis for STEM students, class size is also typically larger for STEM classes than for disciplines requiring significant faculty interaction, such as language and writing classes.

[8] See footnote 6.
[9] See footnote 6.

Table 4.1: 2012-13 Expenditures for Instruction – STEM and Non-STEM Fields (per student) – Narrow Definition

	State General Funds	Tuition and Fees	Nonresident Tuition	Other UC General Funds	Subtotal Core Funds	All Other Funds[10]	Total, All Funds
Blended Rate							
STEM Fields	$8,382	$6,884	$1,464	$1,051	$17,781	$7,779	$25,560
Non-STEM	$5,865	$7,640	$1,024	$736	$15,266	$8,070	$23,336
STEM							
Undergraduate	$7,538	$6,200	$1,317	$945	$16,000	$7,000	$23,000
Graduate	$12,845	$10,500	$2,243	$1,611	$27,200	$11,900	$39,100
Non-STEM							
Undergraduate	$5,307	$6,900	$927	$666	$13,800	$7,300	$21,100
Graduate	$8,999	$11,800	$1,572	$1,129	$23,500	$12,400	$35,900

Table 4.2: 2012-13 Expenditures for Instruction – STEM and Non-STEM Fields (per student) – Broader Definition

	State General Funds	Tuition and Fees	Nonresident Tuition	Other UC General Funds	Subtotal Core Funds	All Other Funds[11]	Total, All Funds
Blended Rate							
STEM Fields	$9,460	$8,590	$1,652	$1,187	$20,889	$14,839	$35,728
Non-STEM	$6,862	$9,192	$1,199	$861	$18,113	$13,876	$31,989
STEM							
Undergraduate	$8,384	$7,700	$1,464	$1,052	$18,600	$12,200	$30,800
Graduate	$15,153	$13,300	$2,646	$1,901	$33,000	$28,800	$61,800
Non-STEM							
Undergraduate	$6,153	$8,300	$1,075	$772	$16,300	$11,700	$28,000
Graduate	$10,846	$14,200	$1,894	$1,360	$28,300	$26,100	$54,400

UNDERFUNDED COSTS AND INVESTMENT IN THE ACADEMIC PROGRAM

As noted above, there is an essential distinction between "cost of education" and "expenditures for education." While this report is focused on what the University is actually spending on instruction, it is important to recognize that UC's per-student spending on education has eroded significantly over the last 20 years as a result of both declining State support and growth in mandatory costs. **As such, UC's current expenditures on instruction do not represent the *cost* of educating students – what the University *should* be spending to properly support its core academic programs.**

The University has taken a wide variety of actions to help mitigate the impact of declining State support. It has increased tuition, expanded nonresident enrollment, and pursued other sources of alternative revenues. UC has also taken aggressive actions to reduce costs. The *Working Smarter* initiative and

[10] See footnote 6.
[11] See footnote 6.

other administrative efficiency efforts have benefitted the University by increasing productivity and streamlining operations, reducing costs, and thus freeing up funding that would otherwise not be available to support UC's academic programs – a total of $660 million in positive fiscal impact has been achieved over the first four years of this program. These actions to improve operational efficiency and increase alternative revenues, however, have only addressed a portion of the funding shortfall facing the University.

Focusing exclusively on expenditures at one point in time does not allow a real assessment of the impact of recent budget cuts and the long-term decline in State support on the quality of UC's core instructional programs. Yet, determining the magnitude of the funding challenges facing the University as it seeks to protect the quality of its core academic programs provides an essential context to understanding the true cost of instruction at UC.

The University's 2015-16 budget plan identifies several critical areas of the instructional program where the impacts of funding shortfalls have been particularly evident – and where reinvestment has been identified by the University as a high priority. These areas include the rising student-faculty ratio, the growing market gap in faculty salaries, and chronic underfunding of key elements of academic support, such as instructional technology, instructional equipment replacement, and ongoing maintenance. Reducing spending in these critical areas of the academic program was necessary to balance UC's budget during the recent years of budget cuts and fiscal turmoil, but these reductions are not sustainable in the long term if UC is to continue to offer a high-quality education to future generations of Californians.

Any meaningful estimate of UC's cost of instruction must recognize these funding shortfalls in critical areas of the academic budget.

Student-faculty ratio. Faculty hiring on the general campuses has been one of the areas hard hit by recent budget cuts. For two years (2011-12 and 2012-13) – for the first time in UC history – more faculty separated from the University than were hired. UC's faculty is at the foundation of the University's academic excellence, and the adverse effects of reduced or delayed faculty hiring ripple through the instructional and research enterprises of the University. An insufficient number of faculty affects not only UC's ability to deliver excellent instruction to its undergraduate students, but also impacts support for graduate education, so critical to meeting the state's workforce needs.

To the extent that hiring faculty involves a long-term funding commitment (a faculty member's career at UC can extend beyond 30 years), campuses have been cautious in filling vacated positions, given the uncertainties of permanent support to cover the costs of those positions. The University's current budgeted student-faculty ratio as agreed upon with the State is 18.7:1, a higher ratio than UC maintained over many years of its history. Since 2007-08, the actual ratio has risen significantly as campuses have been forced to delay hiring due to both the volatility and declines in State support. Delayed hiring over a number of years at the same time that student enrollments have continued to grow has had a deleterious effect on the student-faculty ratio. As a result, in 2013-14, the ratio was estimated at 21:1. The student-faculty ratio is widely recognized as an important indicator of academic quality. This higher student-faculty ratio means larger class sizes and diminished class offerings; it hinders the University's ability to help students complete requirements and graduate on time. Most significantly, a higher student-faculty ratio decreases opportunities for contact inside and outside of the classroom, undergraduate participation in research and public service, and advising and guidance for

internships, graduate education, and career placement. Restoring faculty lines and reversing the trend of rising student faculty ratios is an urgent priority of the University.

Faculty salary lag. Being able to recruit and retain the best faculty is at the heart of a research university's ability to maintain quality in both its instructional and research programs. UC's faculty is the foundation of UC's long legacy of excellence. Historically, even as faculty salaries have lagged behind public and private comparison institutions, UC has been able to compete for the most talented faculty on a total compensation basis with its benefits packages. Over the past several years, the University adopted a number of changes to reduce the cost of its retirement pensions and retiree health and medical insurance benefits. As the value of those benefits packages have declined relative to those offered by institutions with which UC competes for faculty, lagging faculty salaries present an increasingly serious challenge and threaten UC's ability to maintain the high quality of its faculty. The value of benefits no longer makes up for the salary lag. Closing that salary gap, or at minimum ensuring that the current gap does not grow larger, thus represents a critical priority for UC since competition for faculty is particularly intense from universities where faculty salaries have continued to rise. A recently completed total remuneration study of UC general campus ladder-rank faculty conducted by independent consultants concluded that salary and benefits for UC ladder rank faculty lag the market by 10%. Faculty salaries across the UC system lag an average of 11.6%. At a time of reduced State support, less-competitive compensation, growing enrollments, and a steady stream of faculty separating from the University, campuses are increasingly concerned about maintaining faculty quality. Campuses report that they face persistent recruitment and retention issues for faculty at all stages in their UC careers and that salary is their biggest challenge.

Graduate student support. UC graduate programs directly contribute to California's research and development-intensive industry sectors by supplying highly trained alumni and attracting industry to California. No less important is the crucial role UC graduate students play in higher education, both as future faculty at UC, CSU, and other California colleges and universities, but also as teaching and research assistants while in graduate school. A systemwide survey conducted in Spring 2013 indicated that the net stipend offered by UC to students admitted to its academic doctoral programs lagged offers from students' top-choice, non-UC institutions by an average of $1,400. It is imperative that the University strengthen its graduate student support programs to ensure its ability to continue to attract top-flight graduate students for their contributions to education, research, public service and California's workforce needs.

Instructional equipment and technology. Similar to all research-focused universities in the country, and indeed in the world, advanced instructional equipment and technology play an increasing integral role in supporting the instructional mission. In recent years UC has simply not had the resources to invest in the equipment and technology that are essential to preparing students to meet the workforce needs of a technology-driven modern economy. While it is possible to defer such investments in the short term, it is not possible to delay such investment indefinitely without severely compromising the education that students expect at a research university.

Building maintenance. The budget for the operation and maintenance of plant (OMP) is one of the first areas of the budget to face reductions when budget cuts occur. There are few opportunities to reduce the costs of some elements of the OMP budget. For example, purchased utilities and refuse bills must be paid on an ongoing basis if facilities are to continue to operate. Campuses have more discretion when it comes to funding other OMP areas, such as building maintenance, grounds keeping, and custodial services, and it is these areas of facilities maintenance that are likely to face significant

reductions when budget cuts are imposed. Building maintenance has been particularly hard hit in recent years. Past governors have recognized a history of State underfunding of building maintenance by including special allocations for building maintenance among other critical needs in their compacts and partnership agreements with UC. Severe shortfalls in building maintenance support reduce the useful life of mechanical and other building systems and accelerates the growth of deferred maintenance backlogs.

UC maintains more than 60 million square feet of State-eligible space, nearly 60% of which was constructed more than 30 years ago. Maintenance costs increase as facilities age. Similarly, as programmatic needs evolve, UC must maintain an increasing proportion of facilities with complex mechanical systems to support instructional programs focused on disciplines in the sciences and technology. These facilities are also more expensive to maintain than ordinary classroom facilities.

CONCLUSION

The University of California is a complex institution consisting of a wide spectrum of programs that serve an equally wide range of constituents. UC not only instructs undergraduate students within an extraordinarily diverse universe of major areas of studies, but also educates at the graduate level the highly- skilled workforce needed for a knowledge-based economy, treats millions of patients through its medical center enterprise, provides advice and new knowledge to a variety of public stakeholders such as the agriculture industry and K-12 schools, and brings art and culture to the communities in which its campuses are housed.

At the core of its activities, however, lies the commitment to teaching and education that helps define the University and focus its mission. Teaching and learning occur in settings that include not only the classroom, but also the research lab, a patient's bedside in a medical center, or an agricultural field. The task of delineating activities within this broad spectrum among levels of students and types of disciplines is extremely challenging. Funds are neither budgeted nor spent according to these categories. Moreover, there is more to education than just completing a check-off list of classes. Exposure to world-class researchers, to a diverse student body, to critical thinking and social mobility – these measures may not be quantifiable in the way a narrow definition of instruction is, but they are also necessary for UC to be the university envisioned by the Master Plan.

Equally important, the expenditure levels reflected in this report do not adequately fund the University's needs – shortfalls as indicated in the section above have real consequences for the institution's ability to deliver the world-class education students expect when they attend the University of California. Thus, the information contained in this report should be used cautiously and only in the context of considering the true costs of providing a world class, competitive education for future generations of Californians.

Appendix 1: AB 94 Cost of Instruction Provision

AB 94 Cost of Instruction Provision Article 7.5. requires that:

> (a) The University of California shall report biennially to the Legislature and the Department of Finance, on or before October 1, 2014, and on or before October 1 of each even-numbered year thereafter, on the total costs of education at the University of California.
> (b) The report shall identify the costs of undergraduate education, graduate academic education, graduate professional education, and research activities. All four categories listed in this subdivision shall be reported in total and disaggregated separately by health sciences disciplines, disciplines included in paragraph (10) of subdivision (b) of Section 92675, and all other disciplines. For purposes of this report, research for which a student earns credit toward his or her degree program shall be identified as undergraduate education or graduate education.
> (c) The costs shall also be reported by fund source, including all of the following:
>
> (1) State General Fund.
> (2) Systemwide tuition and fees.
> (3) Nonresident tuition and fees and other student fees.
> (4) University of California General Funds, including interest on General Fund balances and the portion of indirect cost recovery and patent royalty income used for core educational purposes.
>
> (d) For any report submitted under this section before January 1, 2017, the costs shall, at a minimum, be reported on a systemwide basis. For any report submitted under this section on or after January 1, 2017, the costs shall be reported on both a systemwide and campus-by-campus basis.
> (e) A report to be submitted pursuant to this section shall be submitted in compliance with Section 9795 of the Government Code.
> (f) Pursuant to Section 10231.5 of the Government Code, the requirement for submitting a report under this section shall be inoperative on January 1, 2021, pursuant to Section 10231.5 of the Government Code.

Paragraph (10) of subdivision (b) of Section 92675:

(10) (A) The number of degree completions in science, technology, engineering, and mathematics (STEM) fields, disaggregated by undergraduate students, graduate students, and low-income students.

Appendix Table II: Narrow Methodology (Dollars in Thousands)	Total	STEM	Non-STEM
Undergraduate			
General Funds	$1,534,351	$1,856,375	$1,307,039
State General Funds	$1,180,203	$1,427,900	$1,005,358
UC General Funds	$354,148	$428,475	$301,681
Nonresident Tuition	$206,121	$249,380	$175,584
Other UC General Funds	$148,027	$179,095	$126,097
Student Tuition and Fees	$1,250,212	$1,174,441	$1,307,039
Core Funds	$2,784,562	$3,030,816	$2,614,079
All Funds	$4,129,487	$4,356,798	$3,996,889
General Campus Graduate			
General Funds	$476,873	$577,085	$404,305
State General Funds	$366,804	$443,887	$310,986
UC General Funds	$110,068	$133,199	$93,319
Nonresident Tuition	$64,062	$77,524	$54,313
Other UC General Funds	$46,007	$55,675	$39,006
Student Tuition and Fees	$387,027	$362,838	$407,761
Core Funds	$863,900	$939,923	$812,066
All Funds	$1,282,028	$1,351,140	$1,240,560
Health Science Graduate			
General Funds	$736,590		
State General Funds	$566,575		
UC General Funds	$170,014		
Nonresident Tuition	$98,952		
Other UC General Funds	$71,063		
Student Tuition and Fees	$179,553		
Core Funds	$916,142		
All Funds	$3,053,808		

Appendix Table III: Broader Methodology (Dollars in Thousands)	Total	STEM	Non-STEM
Undergraduate			
General Funds	$1,742,719	$2,064,743	$1,515,408
State General Funds	$1,340,477	$1,588,174	$1,165,632
UC General Funds	$402,242	$476,569	$349,776
Nonresident Tuition	$234,112	$277,372	$203,576
Other UC General Funds	$168,130	$199,197	$146,200
Student Tuition and Fees	$1,515,408	$1,458,580	$1,572,236
Core Funds	$3,258,127	$3,523,324	$3,087,644
All Funds	$5,531,239	$5,834,321	$5,303,928
General Campus Graduate			
General Funds	$566,718	$680,753	$487,240
State General Funds	$435,913	$523,627	$374,778
UC General Funds	$130,806	$157,127	$112,461
Nonresident Tuition	$76,131	$91,451	$65,454
Other UC General Funds	$54,674	$65,676	$47,007
Student Tuition and Fees	$473,417	$459,595	$490,695
Core Funds	$1,040,136	$1,140,348	$977,935
All Funds	$1,928,225	$2,135,561	$1,879,846
Health Science Graduate			
General Funds	$831,314		
State General Funds	$639,436		
UC General Funds	$191,878		
Nonresident Tuition	$111,677		
Other UC General Funds	$80,201		
Student Tuition and Fees	$200,760		
Core Funds	$1,032,074		
All Funds	$4,842,265		