

# **Reform the Funding Model for the University of California**

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This paper is written for members of the California State Legislature and other citizens who are perturbed about the financial priorities exhibited by the UC Board of Regents and want to find a better way to ensure the continued excellence of the University of California, while keeping it open and affordable to all our qualified students. The author hopes that this study, with the reform proposals it contains, will be helpful in resolving the current political turmoil. There are two basic questions identified here: Who should pay for undergraduate education at UC? and Who should pay for UC's core mission of academic research? This is not just a California problem; it vexes all of the nation's research universities; but we here may be poised to lead in finding a resolution.

## Background: Mission

The University of California (UC) is commonly described as having a three-part mission: teaching, research and service; and the faculty are at the center of each of those activities. Let's start by seeing what those words mean.

- Teaching is divided into two-or-three main categories: Undergraduate instruction, which leads to a Bachelor's degree for those students; graduate instruction, which leads to a Ph.D. degree for student in what are termed "Academic" graduate programs and to a variety of Master's (or qualified Doctoral) degrees in what are termed "Professional" graduate programs.

The many academic disciplines (Departments in which the faculty are directly employed) relate to those teaching categories as follows. The Colleges of Letters and Science (Physical and Biological Sciences plus Social Sciences plus Humanities) and also the Colleges of Engineering, Agriculture and Natural Resources have both undergraduate programs and graduate academic programs. The Schools of Medicine, Law and Business Management are the high end of Professional graduate programs, while several other disciplines fill in the lesser ranks of the Professional Schools. ("Rank" here implies the perceived financial rewards of joining the particular profession.)

- Research means the search for new knowledge in any academic discipline. I underline this to distinguish from the familiar concept of a student (in college, in high school, or even in elementary school) being given a "research" assignment, which means searching for, gathering up and summarizing information that is already known about some particular topic. In some of the creative and performing arts, "research" is understood to have a broader meaning.
- Service is more complex. There is University service, which means serving on any faculty committee of the department, school, or academic senate at the campus or systemwide level and there are also administrative committees on each campus. Then there is Professional service, which may mean uncompensated work as an editor or reviewer for some academic journals, or as an expert advisor for some governmental or non-profit organization; or it may mean

compensated work as a consultant or practitioner for outside clients. The phrase “Public Service” refers to specific organized programs at the University which are separately funded to provide specific informed advice and leadership to outside communities: the most prominent are the Agricultural Extension service and some forms of advice and guidance for K-12 schools.

For more detailed specification of what is meant by those words “teaching, research and service”, please see the standard set of criteria used in evaluating individuals for appointment or promotion to the various tenure-track positions - Assistant Professor, Associate Professor, Professor - at UC. [1] Those documents make it clear that the several components of professors’ work, while interrelated, are evaluated separately. Furthermore, while they are all important, it is also unquestionable that at a first rate research university, like UC, research is the most important component.

### Background: Funding

UC has at present a total annual operating budget of around \$25 Billion. Much of that is concerned with secondary operations that are seen as “self-supporting” enterprises. The largest is the medical services business (Teaching Hospitals and clinical practice); and then there is sponsored research (research contracts and grants from the federal government, private industry and nonprofit foundations); and there are auxiliary enterprises (dormitories, dining facilities, parking). Additionally, there are gifts and endowments, given to the University and usually restricted to specific purposes designated by the donors.

Our primary focus here is on what UCOP (UC Office of the President) now calls the Core Funds. This pays for the salaries and benefits of the faculty, along with their supporting staff and expenses in each academic department, plus Libraries, plus Student Services. This bundle of funds used to be called the I&R Budget (for Instruction and Research).

There are overhead costs for Administration (at the level of college, campus and statewide system) and for Facilities management that are to be apportioned among all of the productive operations mentioned above.

The University leadership often makes a point of stressing that the Core Funds (now around \$6 Billion per year) are essential to the acquisition of all those additional revenues; and I agree.

In the “good old days”, before around 1990, state appropriations to UC covered the whole I&R Budget, that is, all of the Core Funds except for that portion of student fees that were designated for Student Services. Students (those who were California residents) did not pay for the instruction they received. In more recent times, UC instituted tuition charges and then ramped up the level of those charges placed upon students in order to replace much of what has been cut from state funding. Currently, student tuition and fees account for about half of the Core Funds; and there are plans to increase tuition further.

Present debates center on the question, How much should the state pay and how much should students pay so that UC may continue its historical role as the nation’s (the world’s) greatest public research university?

## The Game of Numbers

It has been the University's practice to take the whole of the I&R Budget (or Core Funds), less the portions assigned to the Health Sciences and also that portion designated as Student Financial Aid, and call that the total Expenditure for Education. This is usually presented by first dividing that total expenditure by the total student enrollment figure and calling that the "Per-Student Average Expenditure for Education". In the latest UC Budget for Current Operations (approved by The Regents in November 2014) on page 29 that number is reported to be \$19,470 per student for the year 2014-15; and it is noted that student tuition and fees cover 43% of that cost. [2]

In UCOP's Preliminary Report re AB 94, dated November 2014, they give a very similar number for the "Expenditure for Instruction Per Student" from Core Funds for the fiscal year 2012-13: it is \$19,858 according to what they call a "Broader Definition" of educational expenditures. [3] They note that this covers all levels of students: undergraduate and graduate academic and graduate professional but excluding the health sciences.

*However, if you are not aware that those numbers include a very large expenditure for unsponsored research activity ("Departmental Research") that can be very misleading.*

What is that thing called, Departmental Research? It is an accounting gimmick employed by all of higher education; and it needs to be understood.

### Understanding Departmental Research

Back almost a century ago, there was a Professor of Accountancy at the University of Illinois who developed a particular system of accounting for his university. That scheme has been maintained and promulgated to this day by NACUBO – the National Association of College and University Business Officers. Table 1, below, shows the standard categories of Operating Expenses by Function, and the dollar amounts for all of the University of California in 2013-14.

**Table 1. UC Operating Expenses by Function**

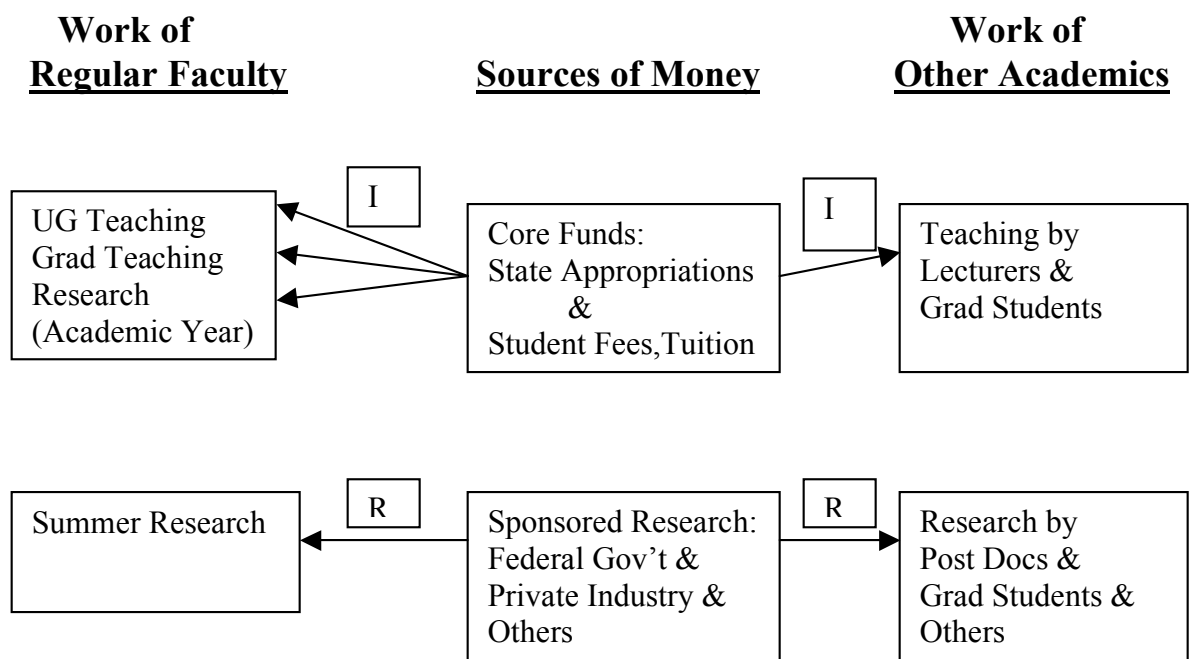
<u>Uniform Classification Category</u>	<u>\$ Millions</u>
Instruction	5,478
Research	3,837
Public Service	581
Academic Support	1,835
Student Services	923
Institutional Support	1,463
Operation and Maintenance of Plant	618
Student Financial Aid	581
Medical Centers	7,482
Auxiliary Enterprises	1,104
DOE Laboratories	1,244
Total	25,146

Source: UC Annual Financial Report 2013/14, page 10 [4]

The intellectual challenge of Accounting is to inquire about what the words really mean. We, professors and students, may think that we understand what is Instruction and what is Research and what is Student Services, etc. But when we look into the details of the actual accounting system there are surprises. Most importantly, the definition of “Instruction” includes a lot of expenditures for faculty research activities; and this needs to be questioned.

The following picture gives a visual representation of professors’ main academic activities and how they are funded. The labels [I] and [R] indicate which money flows are recorded in the official accounting system as expenditures for “Instruction” and “Research”, respectively.

## Basic Financial Picture of the Research University



Here is the story behind this picture. I am a Professor at a major research university (public or private). I am hired primarily for my research abilities and I am also expected to teach both undergraduate and graduate students in my discipline. The university pays me an Academic Year (9-months) salary that covers all of my work. I may also have an externally funded research contract or grant. That pays for any post docs and graduate students and other supporting staff that I may hire to assist me in carrying out my research program, along with the costs of research equipment and supplies and travel expenses. Those research funds may also be used to pay me additional salary during the summer months (and also during a sabbatical leave) when I am free of any teaching responsibilities; but my base academic salary is my only income throughout the academic year. Is there any difference between the research work that I do when paid by university funds (as seen in the upper-left hand box above) and when I am paid by the sponsored research funds (as seen in the lower-left hand box above)? No.

Why is the payment for one category of research activity recorded in the university bookkeeping system as an expenditure for Instruction while the other is recorded as an expenditure for Research? It just is. That is the way the system (the nationwide system of research universities) works. There is a special name given here: “Departmental Research” is defined to cover all research work that is not paid for by an external funding source or an explicit program in the university’s budget; and it is counted as an expenditure for Instruction.

So, there is something strange in the standard accounting system, a system used by all research universities, not just by UC. Is this a small thing or a big thing? Is it merely an abstract inconsistency or does it have serious consequences?

Here is more of the story. You may have heard the term, “teaching load”. This is the standard number of courses that a professor is expected to teach in an average academic year. This number varies considerably among the academic disciplines. In the Humanities and some Social Sciences, it may be as big as 5 or 6 quarter-courses per year. (The Berkeley campus is on the semester system; one can convert the count of semester-courses per year to quarter-courses per year by applying a factor of 3/2.) In most of the STEM fields (Science, Technology, Engineering and Mathematics) the teaching loads are 3 or 4 quarter-courses per year. In the Biological Sciences, it is barely 2 quarter-courses per year. These large variations are said to allow for the greater amount of time that professors in those latter disciplines must spend on their research, whether that research is externally sponsored or not. That schedule of priorities explains why we use the term “teaching load.” Research is the primary task of professors at a research university and anything that takes their time away from that endeavor may be seen as a burden.

This indicates that, once you accept the facts about the strange bookkeeping that counts Departmental Research as an expenditure for Instruction, it is not a small error; it may be a very large error. And this error may have significant consequences.

A most natural question is this: *What does it cost the University to provide undergraduate education*, apart from the cost of providing graduate education and supporting unsponsored research? Those are all important missions of the research university and there are interrelations among them; but their costs may be charged to distinct clienteles and so the costs need to be separated. To answer this question, one would first have to disaggregate the bundle of expenditures for Instruction shown in the upper-left hand box of the picture above. That would give the direct cost of undergraduate instruction. Then, one would add in appropriate costs from Academic Support and Student Services (see Table 1); and finally one would add in appropriate shares of overhead costs from Institutional Support and Operation & Maintenance of Plant.

I am the one person who has done such a calculation, relying on a variety of official data sources for the University of California. The crucial input comes from a Faculty Time-Use Survey conducted by the University some 30 years ago: roughly summarized, this says that UC professors, on average, during the academic year, spend about ½ of their time at research and ½ at teaching and the teaching is equally divided between undergraduate and graduate courses.

My latest detailed calculation, done in early 2013 concluded that the current level of tuition and fees charged to undergraduate students at UC covers significantly more than 100% of the

University's actual cost for providing undergraduate education. [5] This result is in stark contrast with the official pronouncement by UC, noted above, that student tuition and fees (net of financial aid) cover slightly less than half of the "Per-Student Average Expenditure for Education".

The difference in the numerical outcomes is clearly due to the fact that UC starts its calculation with the entire contents of that upper-left hand box in the picture above. What they are actually calculating is the cost of undergraduate education plus graduate education plus Departmental Research. But they call this the Cost of Education; and that, I assert, is very misleading.

In the past I have tried to get top UC officials to acknowledge the falsity of their calculation and published statements about the Cost of Education; but they reply that their method of calculation follows the standard established by NACUBO and followed by the entire higher education community. Indeed, in a 2002 report from a special commission, NACUBO stated that in calculating the Cost of Undergraduate Education, universities should include all of the cost of Departmental Research inside the Instructional expenditures. [6] I have tried repeatedly to get responsible officials to justify that extreme claim, but none have even tried. [7]

But things may be ready for change. A recent report from a special panel of the National Academy of Sciences [8] suggests that it is time to revise that NACUBO methodology and figure out a better way to account for Departmental Research.

#### External Oversight: AB 94

The California State Legislature passed a bill (AB 94), attached to the 2013-14 state budget, requiring the University of California to report the separate "costs of undergraduate education, graduate academic education, graduate professional education, and research activities."

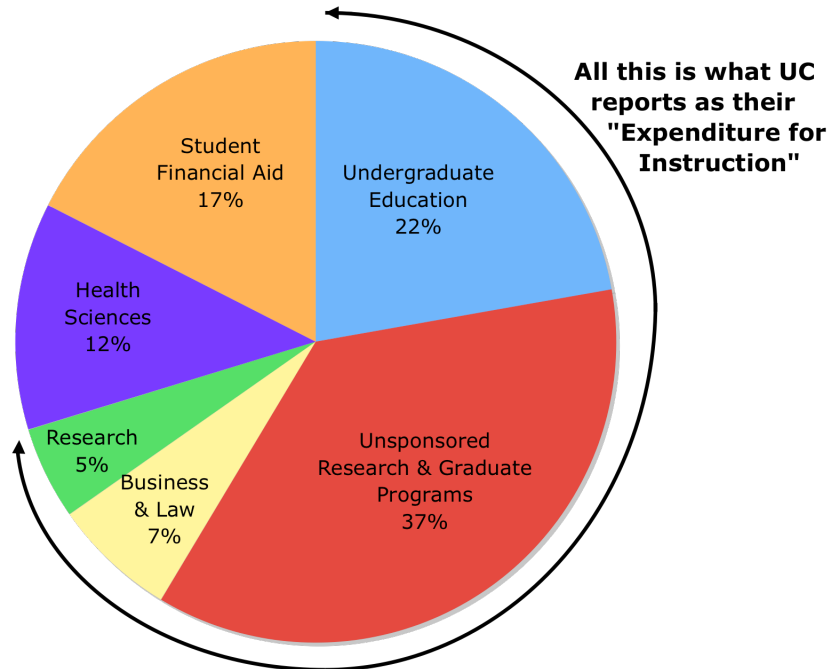
UCOP missed the first deadline, October 1, 2014, for responding to that requirement; and then issued a Preliminary Report one month later. [3] Here they presented their earlier numbers for that whole bundle of academic missions and said that they had so far been unable to disaggregate them as required by AB 94. They actually added in Other Expenditures for Instruction that went far outside of the Core Funds, claiming that those other monies - from endowments and gifts and other funds related to sponsored research - make a positive contribution to the education of students. But that is just a bunch of smoke and mirrors thrown up to create confusion.

They promised a final report in six weeks and, more than ten weeks later, we still wait for that.

And we wait ....

Here is a pie chart showing my calculated results, with a comparison to UCOP's.

**UC's Expenditures of Core Funds - about \$6 Billion**  
State General Funds + UC General Funds + Student Tuition & Fees



An academic paper, detailing my calculations in the context of AB 94 is available. [9]

For the 2013-14 fiscal year I calculate that UC's expenditure of Core Funds was as follows.

- \$1.45 Billion for Undergraduate Education (average expenditure = \$7,500 per student);
- \$2.77 Billion for Research Activity and related Academic Graduate Programs;
- \$1.25 Billion for Research and Graduate Programs in the Professional Schools (including the Health Sciences).

### External Oversight: Goals and Limitations

Recent public arguments about UC finances – and, in particular, The Regents' approval at their November meeting for a plan to increase student tuition unless greater state funding is provided – have led to some provocative proposals from state legislators.

- Senate Constitutional Amendment SCA 1, introduced by Senators Lara and Cannella, calls for all authority over UC to be placed within the statutory powers of the Legislature rather than The Regents. Wisely, the text of that proposal contains explicit language to protect academic freedom at the University. [10]

- Assembly Speaker Toni Atkins has called for the Legislature to adopt zero-based budgeting for UC instead of the current practice of annual increments in the budget coming out of UCOP. [11]
- Public comments from state officials and student leaders show a concern about UCOP’s delays in responding fully to AB 94 and call for more financial accountability and transparency. [12]
- Mixed in with those budgetary criticisms are repeated complaints about executive compensation and excessive management throughout the University.

Some of that may be just a war of words in an ongoing political tussle between Sacramento and The Regents – or more personally between the Governor and the UC President. From my own perspective, as one who has spent his professional career at this University with both devotion and criticism, I am in favor of some substantial reforms but also want to draw some lines between academic functions that should be shielded from political meddling and financial management that needs better public oversight. In doing this, there are some broad conceptual ideas that should be acknowledged.

For example, once we recognize the large amount of Core Funds that are used to pay for the research activities of UC’s faculty, we would ask why that information should be presented as a “per-student expenditure”. It doesn’t make sense. UC President Janet Napolitano has said it nicely, “UC teaches for California and we research for the world.” The research mission of UC is something that is unquestionably a public good and it ought to be paid for by public money.

There is an ongoing debate about undergraduate education at the nation’s colleges and universities: Is it a public good - to have a well-educated citizenry for economic and cultural and socio-political reasons – and therefore it should be funded by public money? Or is it a private good because it advances the earning capability of those students who attend and graduate this institution – and therefore they should pay for some part of it?

That is a real debate. There is no abstractly “right” answer. It is something that will be resolved in the political realm. But we can insist that the debate be carried out in an honest manner, with the relevant facts and figures presented in a credible way. That’s what this paper is all about.

Finally, here are my particular suggestions for what can and should be done.

### Detailed Suggestions for Reform

**A.** UCOP must heed the necessity of fair reporting on the following set of separate categories for the expenditure of Core Funds. This is less than what AB 94 calls for.

#### **A1. Undergraduate Education.**

Recognizing that undergraduate students (and their families) are the major payers of tuition and fees, they deserve an honest accounting of how their payments are used. Where government agencies provide student financial aid, they also need to be assured that those funds are used for the intended purpose. This requires a rejection of the NACUBO rule for including all of Departmental Research in the calculation of the cost of undergraduate education and adopting



some form of Activity-Based Costing to get that calculation right. If UCOP is unable or unwilling to provide a credible answer to this requirement of AB 94, then I would suggest that State officials accept my own calculations, perhaps as an interim answer, while inviting UCOP to work cooperatively to refine that analysis.

**A2. Departmental Research and related academic graduate programs.**

Trying to separate faculty research work from the education of graduate students in the PhD programs is not just impossible (On this point I am in agreement with University officials.) but it is also pointless. Graduate students in these programs, as a matter of policy and practice, receive waivers of tuition and fees when they work as Teaching Assistants (GSIs) or Research Assistants (GSRs) or else they have fellowships that cover all of those charges. This is one whole entity.

**A3. Professional Schools.**

Let the faculty research and professional service activities be combined with the graduate professional education. Separation of the Health Sciences from other professional schools may be easy enough. I do not know enough about the workings of those sectors of the University to say whether anything more should be detailed.

In all three of the above categories I would resist the call for separating various academic disciplines, e.g., STEM, and also resist the call for separate data on individual campuses. Both pedagogically and politically it appears wise to avoid the possible intrusion of external biases.

**B.** Based upon the above financial findings, new funding policies need to be designed by UC and the State through negotiated agreements.

**B1a.** The Regents should establish a firm policy that mandatory tuition and fees for resident undergraduate students shall never exceed 100% of the actual average cost for the University to provide undergraduate education from Core Funds. But this does not mean that those students should regularly pay all of that cost.

**B1b.** The State should accept responsibility for some major portion of the funding of undergraduate education, with the understanding that unpredictable financial ups and downs prevent a rigid formula from being adopted. My suggestion is that, on the average, the State and undergraduate students should equally share this cost; but in some years the balance may be more one way or the other. (Alongside these negotiations with UC, the State should also address how it will share the educational costs at CSU and CCC.)

**B1c.** There should be an effort to shift the burden of providing need-based financial aid for undergraduate students away from the University and toward the State. UC's current "return-to-aid" policy has been important in maintaining affordable access but it may not be sustainable. This is a matter of public policy (taxation) and The Regents are not responsible to the electorate.

**B1d.** The University should reverse its recent push to bring in more nonresident undergraduate students as part of this overall negotiation with the State.

**B2.** The State shall commit itself to provide full funding for Departmental Research and related graduate programs. This does not mean that the State must appropriate as much as UCOP might ask for; but it does call for ongoing negotiations, whose outcome must be adequate to maintain the high standard for research quality and quantity that has made UC the great institution it is. To protect the integrity of the University's core academic missions, this needs to be a single block of funds, which will be disbursed according to UC's internal values and procedures and not subject to external (political) meddling. To put this issue in some perspective, we note that the externally sponsored research done at UC amounts to something over \$3 Billion per year; and that money is almost all restricted to be spent on the particular research projects designated by the individual funding sources, which may be governmental agencies or private organizations.

**B3.** The Regents need to recognize their own failure to understand the inappropriate style of executive compensation that they have foisted upon this public academic institution. [13] They also need to recognize and fix the runaway growth of management staffing throughout UC, an estimated waste of some \$1 Billion per year that has been documented elsewhere. [14]

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