Additions shown by underline; deletions shown by strikethrough.

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Office of the President

TO MEMBERS OF THE ACADEMIC AND STUDENT AFFAIRS COMMITTEE:

DISCUSSION ITEM

For Meeting of July 12, 2017

UPDATE ON ACTIVITY-BASED COSTING PILOT STUDIES

EXECUTIVE SUMMARY

As part of the Budget Framework Agreement between the Governor and the President approved by the Regents, the University agreed that UC Riverside would pilot Activity-based Costing (ABC) for its College of Humanities, Arts, and Social Sciences. Two additional campuses would undertake a scoping study for piloting ABC in at least three departments (within the most popular disciplines) by January 1, 2016, with a goal of implementing ABC in those departments by September 1, 2016, depending on the outcome of the scoping study. UC Davis and UC Merced volunteered to undertake these studies.

UC Riverside has developed the information technology and budget allocation infrastructure needed to implement ABC for all academic departments at the campus. UC Davis and UC Merced each completed scoping studies showing that implementing a similar system like that of Riverside would be cost prohibitive, in large part because of difficulties integrating data across systems and establishing a method for allocating indirect costs to courses. After discussions with State officials and UC Office of the President staff, UC Davis and UC Merced took an alternative approach to implementing ABC pilot studies for three departments at their respective campuses. The revised approach focuses on instructional revenue and costs that can be pulled from one data system. The discussion item describes the goals of the ABC pilot studies and the progress made at each campus.

BACKGROUND

Context

Activity-based costing is a methodology for estimating the cost of providing a product or service based on a detailed assessment of the resources consumed in its production and delivery. ABC is an alternative to traditional cost accounting methods in which direct and indirect costs are typically allocated to products and services on a more general, aggregate basis. The underlying principle behind ABC is that having a better understanding of the true cost of production or service delivery allows an organization to make better decisions related to pricing, resource allocation, opportunities to increase efficiency, and the like.

ABC was first developed in the 1980s and has traditionally been used in manufacturing settings. More recently, ABC has been adopted by organizations in service-based industries as well – including, to a limited degree, higher education. Few US universities have deployed ABC, with the majority of higher education institutions using it based in Australia and the United Kingdom.

ABC represents a decision support tool for a campus where all inputs and outputs of the model are derived from management assumptions. Any campus that implements a similar system would need to make its own decisions on all revenue and expense allocation assumptions. These assumptions could differ significantly from campus to campus, resulting in very different outputs. Thus, ABC data is only useful as an intracampus tool and not as a comparative data set with other campuses. In addition, ABC provides data on the cost side of the cost/quality equation. It does not provide data on quality. Therefore, additional data is needed to carry out a cost-benefit analysis. ABC data will be much more valuable if evaluated alongside data on quality.

Project Goals

UC Davis and UC Merced completed scoping studies on what it would take to implement ABC using an approach and tool similar to those utilized at UC Riverside. When this proved too costly, the campuses took an alternate approach to ABC to implement a pilot for all courses offered within three departments.

The primary goal of the ABC pilot studies was to develop and test the utility of having a defined data set of costs and revenues associated with individual courses that can support deans and department chairs in making decisions about the courses that they offer, the size of individual class sections, and how those courses are delivered. Each ABC pilot entailed three major steps.

First, each campus had to decide what data would be useful and accessible for its pilot. Riverside alone among all the campuses had technical systems that made it comparatively easy to build a single ABC data set from multiple systems. All three campuses had to decide on cost parameters (e.g., what percent of a ladder faculty member's time was allocated to teaching). Each of the three campuses then assembled the relevant cost data for all courses offered in the 2015-16 academic year for the departments included in the pilot. UC Riverside produced cost data for three pilot departments (Hispanic Studies, Psychology, and Theatre). UC Merced produced cost data for its three pilot departments (Chemistry, Computer Science, and Psychology), as did UC Davis (for the departments of Chemistry, Mechanical Engineering, and Psychology).

Second, each campus was expected to obtain feedback from key decision makers in the pilot departments on the utility of the information and insights provided by ABC compared with the information that was already available from any existing tools or resources. Decision makers included deans, chairs, and/or other faculty involved in establishing course offerings for the year, budgeting, and / or allocating departmental resources. The three campuses agreed on a core set of questions to be posed in meetings with these key stakeholders. The questions were as follows:

1. Can you please describe your process for determining how to deliver the curriculum? In particular, what tools do you currently use that help you make financial decisions and/or optimize resources associated with the curriculum?

2. What value would this tool add to your current decision-making process, particularly about curriculum planning and instructional full-time equivalents (FTEs)?

3. Are there revisions to the methodology/assumptions that would make this tool more useful? If so, what?

4. What do you see as the pros and cons of an ABC tool, particularly assigning revenues and costs at a course level?

Information from these stakeholders, along with costs of the ABC tool, is critical to evaluating the utility of this kind of data, particularly in comparison with other financial data they may currently use when determining how to deliver the curriculum.

Third, each campus must produce a report that summarizes the scoping study, results of each ABC pilot study, and campus recommendations based on feedback received from the decision makers and any available cost estimates.

CAMPUS PILOTS

UC Riverside Pilot Study

In the summer of 2015, UC Riverside commenced a pilot study of whether ABC could assist in academic decision-making, specifically in optimizing resource allocation for courses by delivering improved cost data. The ABC course optimization tool is part of a substantial investment in improving UC Riverside's data systems, budget models, and financial and academic management that began prior to the Budget Framework Agreement. Before embarking on the ABC course optimization project, UC Riverside had already redesigned its technical systems, selected revenue and expense allocation methodologies in support of creating a responsibility center management environment, and chosen a new model for allocating revenue to the deans.

While UC Riverside's pilot commenced in earnest in August 2015, it was based on roughly 12 months of previous work in budget redesign. In the fall of 2015, the campus worked on two tracks. One focused on gathering data from multiple campus databases and making it compatible, a task eased considerably by the structure of UC Riverside data. The second focused on developing and implementing processes for interviewing teaching staff to determine how much time they spend on different components of the teaching mission.

UC Riverside found after interviewing a subset of instructors in the pilot departments that the amount of instructor time associated with courses varied. UC Riverside decided it would leverage standard assumptions in determining how to allocate direct and indirect costs to

individual courses (instead of varying allocation decisions by faculty interviews). For revenues, the campus decided to allocate tuition dollars (net financial aid) to courses based on student credit hours. For costs, it considered two options – one that allocated 40 percent of instructor salaries (the choice made by UC Davis and UC Merced) and another that allocated 100 percent of instructor salaries (UC Riverside's current choice) to courses. Data for all courses for 2015-16 have been entered into the data system. Data for 2016-17 have recently been entered into the system, but has not yet been validated in a manner similar to the year prior.

Recently, UC Riverside has focused on the version of their model that allocates 100 percent of all faculty time to instruction. In addition, its study now focuses only on the direct costs of a course, no longer calculating indirect costs. For the purposes of calculating revenues, UC Riverside's ABC model leverages the campus's new budget model and assumes $3,400 per undergraduate student FTE (each undergraduate student FTE equals 45 student credit hours). In each meeting with decision makers, UC Riverside shared summary data for the respective departments, as shown in Display 1 below. (See also Attachment 1.)

Display 1: UC Riverside ABC Pilot Results – Department of Theatre

ACTIVITY BASED COSTING EXERCISE - MAY 31, 2017

Department	Course Number and Name	Course Delivery Method	Total Revenue	Total Expense	Total Margin	Student Enrollments	Sections LEC	Sections LAB	Sections INDI	Sections DISCUSSION
Theatre	THEA010 : INTRODUCTION TO ACTING (GRP A - ON CAMPUS - FALL)	Lec Discussion	$ 98,476	$ 104,994	$ (6,518)	89	1	0	0	3
Theatre	THEA010 : INTRODUCTION TO ACTING (GRP A - ON CAMPUS - SPRING)	Lec Discussion	$ 97,741	$ 105,847	$ (8,105)	89	1	0	0	3
Theatre	THEA010 : INTRODUCTION TO ACTING (GRP A - ON CAMPUS - WINTER)	Lec Discussion	$ 102,479	$ 105,574	$ (3,095)	89	1	0	0	3
Theatre	THEA010 : INTRODUCTION TO ACTING (GRP B - ON CAMPUS - FALL)	Lec Discussion	$ 98,286	$ 103,509	$ (5,224)	87	1	0	0	3
Theatre	THEA010 : INTRODUCTION TO ACTING (GRP B - ON CAMPUS - SPRING)	Lec Discussion	$ 99,355	$ 105,132	$ (5,777)	89	1	0	0	3
Theatre	THEA010 : INTRODUCTION TO ACTING (GRP B - ON CAMPUS - WINTER)	Lec Discussion	$ 115,175	$ 106,486	$ 8,689	89	1	0	0	3
Theatre	THEA010 : INTRODUCTION TO ACTING (NO GRP - ON CAMPUS - SUMMER)	Lec	$ 20,808	$ 68,416	$ (47,608)	20	1	0	0	0

In this example, the first column indicates that the courses shown are for the Department of Theatre. The Course Number and Name column provides a description of each course. The Total Revenue column shows revenues generated by the respective course, and the Total Expense column shows instructional direct costs associated with the course. The Total Margin column calculates the difference between Total Revenue and Total Expense for each course. Additional columns identify the total number of students enrolled in each course and the number of section types (Lecture, Lab, Independent Study, and/or Discussion) for each course.

UC Riverside has completed the technical implementation of ABC and is now establishing user friendly approaches to using data from Pilbara, a cost modeling tool.

UC Riverside leaders have met with deans and department chairs to explore the usefulness of the ABC data. Their feedback will be shared with the UC Office of the President (UCOP) in the coming weeks.

UC Merced Pilot Study

UC Merced's scoping study showed that the work necessary to complete a pilot similar to Riverside's would cost the campus about $4.9 million and take between 24 and 36 months. The

campus had significant challenges with its data systems and would have to rely on consultants because of the lack of staff expertise. After discussions with State officials and UC Office of the President, the campus took an alternate approach to complete an ABC pilot that would rely on direct instructional costs and data from one information system.

In February 2017, UC Merced completed an initial small-scale test of its ABC pilot. This initial test included producing course-level expense and revenue data for four courses in three departments (Chemistry, Computer Science, and Psychology), limiting direct costs to faculty, instructor, and teaching assistant (TA) compensation only. To determine the percent instructional load for each course, as well as to capture percent time spent on "educational activities," UC Merced used pre-set values from both UC Riverside and also the Education Advisory Board, an organization dedicated to forging and finding best practices to address higher education's top challenges with more than 1,000 college and university members. Specifically, ladder rank faculty are assumed to spend 40 percent of their time on instruction. Lecturers and TAs are assumed to spend 100 percent of their time on instruction. Data was manually extracted across multiple systems to produce estimated revenues and expenditures by course.

Following meetings with State officials, UC Merced expanded its approach to pull data for all courses in the three pilot departments from their instructional workload database. Using data from this system, as well as average salaries and workload figures, UC Merced expanded the initial small-scale test to all courses offered by each pilot department during the 2015-16 academic year. The campus created an application that would allow it to present costs and revenue data by course.

UC Merced held individual meetings with associate deans and, when possible, deans who oversaw each of the three pilot departments. Additional attendees included staff with a range of roles involving some responsibility for the budget process and funding requests for teaching support; academic personnel, and instructional activity planning; curriculum, enrollment, and course planning and management; and leadership and departmental growth and planning.

In each stakeholder meeting, UC Merced shared summary data for the respective department that showed average teaching cost to deliver courses in the department, sorted by instructor rank, course level, and class type. In addition, UC Merced provided stakeholders with information showing net cost / revenue per course. Display 2 below shows an example of these summary data. (See also Attachment 2.)

~~Display 2: UC Merced Net Cost / Revenue per Course – Fall 2015 (Chemical Sciences)~~

Instructional Balance by Rank and Level

Course Num	Term Code	Course Level	Class Type	Rank	Class Sections	Instructor Cred Hrs	Maximum Enrollment	Available Capacity	Revenue	Balance
CHEM, 10	F	Lower Division	Lecture	LEC-18	1	1,028	260	12	258,028	235,223
			Laboratory Skills/Techniques	T-ASST	2	0	40	1	0	-27,377
				T-ASST	2	0	40	2	0	-14,409
				T-ASST	2	0	40	2	0	-17,663
				T-ASST	2	0	40	1	0	-13,688
				LEC-18	1	0	20	0	0	-11,584
				LEC-18	2	0	40	0	0	-4,245
				T-ASST	2	0	40	6	0	-16,078
	S	Lower Division	Laboratory Skills/Techniques	T-ASST	2	0	40	1	0	-13,346
				T-ASST	2	0	40	0	0	-8,831
				T-ASST	2	0	40	1	0	-13,355
				T-ASST	2	0	40	1	0	-13,688
				LEC-18	1	0	20	0	0	-1,536
				LEC-18	4	0	80	0	0	-19,597
CHEM, 95	S	Lower Division	Laboratory Research	ASOC P	1	1	1	0	251	89
CHEM, 002H	F	Lower Division	Lecture	ASST P	1	42	24	3	10,542	5,199
				ASOC P	1	42	24	3	10,542	6,658
			Laboratory Skills/Techniques	LEC-18	1	0	24	3	0	-1,863
CHEM, 008H	F	Lower Division	Lecture	ASST P	1	68	20	3	17,068	217
			Laboratory Skills/Techniques	T-ASST	1	0	20	3	0	-6,649
CHEM, 008L	F	Lower Division	Laboratory Skills/Techniques	T-ASST	2	0	40	2	0	-12,444
				T-ASST	2	0	40	0	0	-14,601
				T-ASST	1	0	20	0	0	-7,822
				T-ASST	2	0	40	1	0	-17,111
				T-ASST	2	0	40	2	0	-15,936
				T-ASST	2	0	40	2	0	-27,377
	S	Lower Division	Laboratory Skills/Techniques	T-ASST	2	0	40	6	0	-12,776
				T-ASST	2	0	40	18	0	-9,714
				T-ASST	2	0	40	7	0	-12,906
				T-ASST	2	0	40	16	0	-10,266
				LEC-18	2	0	40	17	0	-21,480
				T-ASST	2	0	40	2	0	-27,377

Display 2: UC Merced Net Cost / Revenue per Course – Fall 2015 (Chemical Sciences)

Instructional Expense by Rank, Level and Type

					Ladder Rank						Lecturer					
Course Level	Course Subj	Course Num	Course Title	Class Type	Class Sections	Sum Avg. Compensation..	Balance	Enrollment	Maximum Enrollment	Available Capacity	Class Sections	Sum Avg. Compensation..	Balance	Enrollment	Maximum Enrollment	Available Capacity
Lower Division	CHEM	1	Preparatory Chemistry	Lecture							4	67,189	591,686	875	912	51
				Lecture-Supple..							16	104,326	-104,326	460	471	22
		2	General Chemistry I	Lecture							3	66,861	565,659	630	720	101
				Laboratory Skil..							8	81,458	-81,458	170	192	24
		8	Prin of Organic Chem	Lecture							1	64,806	117,420	242	242	3
		10	General Chemistry II	Lecture							1	22,805	235,223	257	260	12
				Laboratory Skil..							8	36,962	-36,962	160	160	0
		95	Lower Div Undergrad Research	Laboratory Res..	1	162	89	1	1	0						
		002H	Honors Gen Chem I	Lecture	2	9,227	11,857	42	48	6						
				Laboratory Skil..							1	1,863	-1,863	21	24	3
		008H	Honors Organic Chemistry	Lecture	1	16,851	217	17	20	3						
		008L	Prin of Org Chem Lab	Laboratory Skil..							2	21,480	-21,480	23	40	17
		010H	Honors Gen Chem II	Lecture	1	7,768	9,300	17	20	3						
	ESS	1	Intro to Earth Sys Sci	Lecture							1	9,140	94,272	103	120	18
				Laboratory Skil..							1	1,775	-1,775	20	24	4
	PHYS	8	Introductory Physics I	Lecture-Supple..							3	18,679	-18,679	68	72	4
				Laboratory Skil..							3	18,679	-18,679	68	72	4
Upper Division	BIO	101	Biochemistry I	Lecture	1	13,758	89,654	103	169	75						
		102	Biochemistry II	Lecture	1	13,758	-9,742	4	20	16						
		120L	General Micro Lab	Laboratory Skil..							1	11,207	-11,207	12	20	8
		150	Embryos, Genes, and Develop	Lecture-Supple..							1	19,613	-19,613	21	24	3
		195	Upper Div Undergrad Research	Seminar-Topical	1	1,232	-228	1	5	4						
	CHEM	100	Organic Synth and Mechanism	Lecture							2	48,852	219,969	357	361	18
		100L	Organic Chemistry Laboratory	Laboratory Skil..							11	30,845	-10,012	190	220	31
		101L	Advanced Synthetic Laboratory	Laboratory Skil..							2	4,926	13,146	36	40	4
		111	Biochemistry I	Lecture	1	13,758	-2,714	11	169	160						
		113	Chem Thermo and Kinetics	Lecture	1	15,394	10,961	35	45	10						
		115	Instrumental Analysis	Lecture	1	18,493	6,356	33	45	10						
		120	Inorganic Chemistry	Lecture	1	5,826	22,788	38	60	22						
		122	Biochemistry II	Lecture	1	13,758	-3,718	10	20	10						
		130	Org Spectrosc and Computation	Lecture	1	10,142	-3,365	9	20	11						
		140	Nanoscale Materials Chemistry	Lecture	1	18,493	-12,469	8	20	12						
		150	Inorganic Lab	Laboratory Skil..							2	1,804	6,730	34	40	7
		153	Physical Chemistry Laboratory	Laboratory Skil..	2	17,260	-8,224	36	36	1						
		155	Instrumental Lab	Laboratory Skil..	2	14,787	2,281	34	40	6						
		160	Scientific Computing for Chem	Laboratory Skil..	1	15,394	-4,852	14	30	16						
		194	Ethics and Communication	Seminar-Topical	1	12,401	-5,122	29	33	4						
		195	Upper Div Undergrad Research	Laboratory Res..	16	19,937	-2,869	21	82	62						
		198	Upper Div Directed Group Study	Individualized I..	2	1,295	713	2	10	8						
	NSED	130	Technology in Education	Lecture							1	74,715	-69,444	7	24	17

In this example, the first ~~four~~ five columns (~~Course Num, Term Code, Course Level, Class Type~~) (Course Level, Course Subj, Course Num, Course Title, and Class Type) provide general information about each individual course. The ~~Rank~~ topmost column header identifies the type of instructor teaching the course. The Class Sections column shows the number of individual sections associated with each course. ~~The Instructor Cred Hrs column is calculated by multiplying a course's total enrollment by credit hours. This amount is also distributed within a course to reflect percent responsible, such that a lecture / lab combination may have all revenue associated with the faculty member teaching the lecture and no revenue tied to a teaching lab.~~ The Sum Avg. Compensation column shows the total direct costs associated for the instructor type. Maximum Enrollment represents the maximum number of student allowed to register for the course, whereas Available Capacity is the difference between Maximum Enrollment and actual enrollment.

UC Merced set the tuition Revenue amount at $251 per instructor credit hour. ~~The~~ Revenue ~~column~~ is calculated by multiplying the Instructor Cred Hrs figure (not shown in the display above) by $251. The Balance column is the difference between the expenses associated with each course and the revenues generated by that course.

In May 2017, UC Merced met with key stakeholders and obtained feedback on the utility of the ABC data. The feedback was varied, and the campus is continuing to summarize it and identify key points.

UC Davis Pilot Study

UC Davis also started with a scoping study that showed that the work necessary to complete a pilot similar to Riverside's would cost the campus about $3 million and take between 27 and 30 months to complete. After discussions with State officials and UC Office of the President, the campus took a similar approach to that of UC Merced to complete an ABC pilot that would rely on direct instructional costs and data from one information system.

UC Davis completed an initial small scale test of its ABC pilot in February 2017. This initial test included course-level data for a sampling of six courses in the department of Chemistry. Similar to UC Merced, direct costs were limited to faculty, instructor, and TA compensation only. UC Davis used its own campus standards and pre-set values from UC Riverside's original pilot study to determine the number of courses taught by the instructor in a full academic year, as well as to capture the percentage of time spent on "educational activities." Data were manually extracted across multiple systems to produce estimated revenues and expenditures by course.

Following meetings with State officials, UC Davis proposed an approach similar to UC Merced's that would leverage data from its instructional workload database to identify who was teaching courses so it could assign appropriate average salary figures to develop cost estimates for purposes of this pilot. This approach was used for all courses offered in academic year 2015-16 by the departments of Chemistry, Mechanical Engineering, and Psychology.

UC Davis finalized the ABC data in early June and provided complete data sets to decision makers in each pilot department. Display 3 below shows a sample of the final data for the department of Chemistry. (See also Attachment 3.)

Display 3: UC Davis ABC Pilot Results – Department of Chemistry

#	Acad Year	Qtr	Course Code	Course Title	Sect #	Units	Enrlmt	SCH	Instr Type	Instr S&B Exp by units	TA Count	TA Salary Expense	Instr + TA Cost	Revenue (UG SCH x $81)	Net
1	2015-16	Fall	CHE002A	General Chem	A00	5	450	2,250	Lecturer	$20,912	11.6	$69,658	$90,570	$182,250	$91,680
2	2015-16	Fall	CHE002A	General Chem	B00	5	469	2,345	Lecturer	$20,912	11.6	$69,658	$90,570	$189,945	$99,375
3	2015-16	Fall	CHE002A	General Chem	C00	5	489	2,445	Lecturer SOE	$49,211	11.6	$69,658	$118,869	$198,045	$79,176
4	2015-16	Fall	CHE002A	General Chem	D00	5	357	1,785	Lecturer	$20,912	11.6	$69,658	$90,570	$144,585	$54,015
5	2015-16	Fall	CHE002A	General Chem	E00	5	451	2,255	Lecturer	$20,912	11.6	$69,658	$90,570	$182,655	$92,085
6	2015-16	Fall	CHE002AH	Honors General Chem	A00	5	75	375	Asst Prof	$28,469	2.0	$12,010	$40,479	$30,375	($10,104)
7	2015-16	Fall	CHE002C	General Chem	A00	5	297	1,485	Lecturer	$20,912	10.0	$60,050	$80,962	$120,285	$39,323
8	2015-16	Fall	CHE002C	General Chem	B00	5	448	2,240	Lecturer	$20,912	10.0	$60,050	$80,962	$181,440	$100,478
9	2015-16	Fall	CHE008A	Organic Chemistry-Brief	001	2	421	842	Lecturer	$8,365	4.0	$24,020	$32,385	$68,202	$35,817
10	2015-16	Fall	CHE008A	Organic Chemistry-Brief	002	2	117	234	Associate In	$5,495	4.0	$24,020	$29,515	$18,954	($10,561)
11	2015-16	Fall	CHE008B	Organic Chemistry-Brief	A00	4	217	868	Lecturer	$16,730	5.0	$30,025	$46,755	$70,308	$23,553
12	2015-16	Fall	CHE010	Concept Of Chem	001	4	31	124	Lecturer	$16,730			$16,730	$10,044	($6,686)
13	2015-16	Fall	CHE104	Forensic Analytical Chem	A00	3	41	123	Professor	$24,936	4.0	$24,020	$48,956	$9,963	($38,993)
14	2015-16	Fall	CHE105	Anal & Phys Chem Methods	A00	4	51	204	Professor	$33,249	4.0	$24,020	$57,269	$16,524	($40,745)
15	2015-16	Fall	CHE107A	Phys Chem Life Sci	001	3	251	753	Professor	$24,936	4.0	$24,020	$48,956	$60,993	$12,037
16	2015-16	Fall	CHE110A	Phys Chem: Quantum Mech	A00	4	85	340	Assoc Prof	$19,319	3.0	$18,015	$37,334	$27,540	($9,794)
17	2015-16	Fall	CHE110A	Phys Chem: Quantum Mech	B00	4	69	276	Lecturer	$16,730	3.0	$18,015	$34,745	$22,356	($12,389)
18	2015-16	Fall	CHE110B	Phys Chem: Atoms & Molec	A00	4	69	276	Asst Prof	$22,775	2.0	$12,010	$34,785	$22,356	($12,429)
19	2015-16	Fall	CHE115	Instrumental Analysis	001	4	21	84	Professor	$33,249	2.0	$12,010	$45,259	$6,804	($38,455)

In this example, the first six columns (#, Acad Year, Qtr, Course Code, Course Title, and Sect #) contain descriptive information for each individual course. The Units column shows how many units are offered in each course. The Enrlmt column indicates the number of students enrolled in each course. The SCH column displays the total number of student credit hours associated with each course, and the Instr Type column shows the type of instructor teaching the course.

The final six columns show actual cost and revenue calculations for each course. The Instr S&B Exp by units column calculates the total instructor salary and benefits cost tied to each course. Figures in the TA Count column are manually entered and then multiplied by an average TA salary cost ($4,943 per TA) to determine the total amount shown in the TA Salary Exp column. The Instr + TA Cost is the sum of the Instr S&B by units column and TA Salary Exp column, and reflects the total direct costs of instruction associated with the individual course.

The Revenue (UG SCH x $81) column calculates the revenues associated with each course by taking the number of student credit hours and multiplying by $81. Revenue was limited to undergraduate courses. UC Davis's budget model does not allocate graduate tuition revenue based on student credit hours; it is instead based on enrollments. The UC Davis budget model does allocate some of the undergraduate tuition revenue based on instruction. For 2015-16, it was $81 / SCH.

The report is limited to the section level for credit-bearing sections. In the display above, for example, General Chemistry (CHE 002A) appears in five lines since it had five credit-bearing sections in fall 2015. Individual labs or discussion sections are not included. Independent study courses are also excluded. Similar to UC Merced, UC Davis chose to allocate 40 percent of faculty time to instruction. The campus shared an early draft of the report with select deans, who confirmed their desire to see this 40 percent figure used in the ABC data.
Instructional load was calculated at the college or division level. For Chemistry, the load was calculated at the level of the Division of Mathematical and Physical Sciences. The total salary and benefit expense for full professors in the Division was $26.6 million in 2015-16. Forty percent of that, or $10.6 million, is allocated to instruction. Full professors in MPS taught nearly 1,280 units, resulting in an average cost of $8,300 per unit ($10.6 million / 1,280 units). In other words, if a full professor taught a three-unit course, then the instructor expense was about $25,000 ($8,300 x 3).

UC Davis presented the ABC data to the various deans, associate deans, assistant deans, and department chairs of the three pilot departments. Feedback was solicited as to the usefulness of the data, and it will be shared with UCOP in the coming weeks.

Next Steps

The three campuses will be summarizing results from the pilots, including feedback from key faculty and staff involved in making decisions about optimizing resources to implement the curriculum. Campus leaders will present some of the initial feedback they received as part of this discussion item.

Key to Acronyms

ABC	Activity-based Costing
SCH	Student Credit Hour
UCOP	UC Office of the President

Attachments:

Attachment 1: UC Riverside ABC Pilot Results – Department of Theatre

Attachment 2: UC Merced Net Cost / Revenue per Course – Fall 2015 (Chemical Sciences)

Attachment 3: UC Davis ABC Pilot Results – Department of Chemistry