TO THE MEMBERS OF THE ACADEMIC COUNCIL
FORTY-FIFTH SENATE REPORT No. 1

Summary of Actions Taken by the Senate
October 11, 2012

Advanced and Baccalaureate degree candidates were approved for conferral September 27, 2012, by the Administrative Session of the Steering Committee on behalf of the Senate, in an electronic vote. The Steering Committee action on behalf of the Senate was recorded in the first Senate report along with the minutes.

Rex L. Jamison, MD
Academic Secretary to the University
Professor of Medicine, Emeritus
I. Call to Order
The Chair of the 45th Senate, Ray Levitt, the Kumagai Professor in the School of Engineering, called the first meeting of the 45th Senate to order at 3:00 PM. In attendance were 33 members and 9 ex officio members and many guests.

He began the session by announcing honors received by three distinguished Stanford faculty.

“Fellow Senator, Lucy Shapiro, the Virginia and D. K. Ludwig Professor of Cancer Research and FSI Senior Fellow, is a recipient of the 2012 Louisa Gross Horwitz Prize for her work on the three-dimensional organization of bacteria cells. The Horwitz Prize is Columbia University’s top honor for achievement in biological and biochemistry research.

“Jim Spudich, the Douglass M. and Nola Leishman Professor of Cardiovascular Disease will receive the 2012 Albert Lasker Medical Research Award for his investigations of the molecular motors that drive our skeletal and heart muscle contraction. Lasker Awards often presage future recognition by the Nobel committee.

“And yesterday, we learned that Brian Kobilka, the Helene Irwin Fagan Chair in Cardiology, Professor of Medicine and Professor and Chair of the Department of Molecular and Cellular Physiology, won the Nobel Prize in Chemistry for his work on the G-coupled receptors that regulate many physiological processes in the body—such as the shock he must have experienced when getting the early morning phone call from Stockholm.”

[The Senate expressed its appreciation with vigorous applause.]

Chair Levitt also welcomed to the Senate the new Dean of the School of Law, Elizabeth Magill, Richard E. Lang Professor of Law.

II. Approval of Minutes – (SenD#6653)
The minutes of the June 14, 2012, meeting of Senate XLIV were approved.

III. Report on Degree Conferral for Summer Quarter 2012
A. List of Candidates for Advanced and Baccalaureate Degrees conferred on 9/27/12 in online Administrative Session of the StC (SenD#6671 and SenD#6672)
On behalf of the Senate, the Steering Committee, by administrative action, approved the degree conferral lists electronically for the Summer conferrals on September 27, 2012. The full list is available on the Faculty Senate website.
B. Degrees Conferred Summary — 7/1/11-6/30/12 (SenD#6673)
The report, which summarizes degrees awarded to students in the prior year, listed by school and by major, and including minors was made available to the Senate. The report was for the Senate’s information only; no vote was required.

Chair Levitt thanked Registrar Black and his staff for preparing the report.

IV. Standing Reports
A. Memorial Resolutions:
Chair Levitt invited Ron Howard, Professor of Management Science and Engineering, to present the memorial resolution for Donald Dunn, Professor of Engineering-Economic Systems, Emeritus. Guests in attendance were his wife, Jane Dunn, son, William Dunn, committee member, David Luenberger, David Shrom and Robin Bay.

Donald Dunn (1925-2011) SenD#6677
Professor Donald A. Dunn died on September 27, 2011. He was 85 years old.

Don was a passionate, inspirational teacher and bold thinker, frequently engaged in multiple fields of study and work contemporaneously.

As an undergraduate, Don attended Cal Tech, studying chemistry under Linus Pauling and history under J.E. Wallace Sterling, graduating in three years via the Navy V-12 program. Don received the LL.B. degree from Stanford Law School in 1951. He was admitted to the state bar of California and was admitted to practice before the US patent office. Don entered the Stanford Electrical Engineering Department graduate program, studying under Fred Terman and Lester Field, receiving his PhD in electrical engineering in 1956.

Don’s early publishing was in various fields of physics and electronics, including microwave electron tubes, microwave power systems, and computer simulations of plasmas. He was a pioneer in the field of microwave research. He served as Director of the Electron Devices Laboratory at Stanford and Director of the Stanford Plasma Physics Laboratory. More recently he published in areas of systems engineering, satellite and computer communication, and telecommunications public policy. He was consultant to the National Academy of Engineering’s Committee on Telecommunications and addressed the 91st Congress in 1969 on telecommunications policy.

In the 1960s, Don was involved in the formation of a new department at Stanford, the Department of Engineering – Economic Systems. EES was created to apply methods of systems and economic analysis to engineering problems involving policy and decision-making, both in government and industry. The area of policy analysis in EES was a primary interest for Don; he developed a department course on that subject. He served as a professor and associate chair of EES for many years, retiring in 1995.
We will remember Don as an engaging colleague and friend with a warm smile, who was always helpful to his colleagues and his students. He radiated a great sense of humor that uplifted every encounter.

Don’s family reports that he often spoke of the Engineering School, and the key role it plays in bringing together small teams of students and teachers who can challenge and inspire each other to create new ideas in engineering.

Mr. Chairman, I have the honor, on behalf of a committee consisting of David Luenberger, James Sweeney, and myself, Ronald Howard, to lay before the Senate of the Academic Council a resolution in the memory of the late Donald A. Dunn, Professor Emeritus of Management Science and Engineering, in the School of Engineering.

At Chair Levitt’s invitation, everyone stood for a moment of silence in tribute.

Chair Levitt thanked Professors Howard, Luenberger and Sweeney.

A. **Steering Committee**

Chair Levitt began a series of announcements.

“İ’d like to remind you of the distinguished group you elected last spring to the Senate Steering Committee: David Palumbo-Liu, Comparative Literature, Vice Chair; Linda Boxer, Medicine; Michele Elam, English; Susan Holmes, Statistics; Jay Mitchell, Law; Stephen Stedman, Freeman Spogli Institute; and Mark Zoback, Geophysics. Also on the StC as *ex officio* members are Provost John Etchemendy and Academic Secretary Rex Jamison.

“The Steering Committee is pleased that Tom Wasow (Linguistics) has agreed to chair the Committee on Committees this year. Other senators who are members are Martha Cyert, Robert Dutton, Michael Hannan, Iain Johnstone, Carolyn Lougee Chappell and David Spiegel.

“Others assisting the Senate are Trish Del Pozzo, Caitlin Durham, Priscilla Johnson and Steven Aldridge in the Academic Secretary’s Office.

“The Senate Roster includes 55 elected Representatives who are voting members and 15 *ex officio* members who do not vote (these are the President, the Provost, the school deans and other senior academic officers).

“Twelve of the 55 voting members are new to the Senate; the rest have served one year or more. Among the voting members, 19 are women and 7 are former Senate chairs.

“The Senate has 7 reserved seats for standing guests. Today we welcome:
“Former Senate chair, Alexander “Sandy” Fetter, Professor emeritus in the Department of Physics, who serves as the emeritus representative to the Senate. The emeriti representative has the “privilege of the floor”, with no vote.

“Thomas Black, University Registrar, is also a long-time standing guest of the Senate, with privilege of the floor.

“Four seats are reserved for ASSU student government representatives. They are:
- ASSU President – Robbie Zimbroff
- ASSU Undergraduate Senate rep – Shahab Fadavi
- ASSU Graduate Student Council Rep – Michael Shaw
- ASSU Student Rep at Large – Olivia Hu

“The Stanford Daily reporter also has a standing guest seat.”

A form was distributed to all members to enable them to suggest topics for Senate discussion. Additional suggestions at any time may be submitted to members of the Steering Committee.

**Comments from Chair Levitt**
Chair Levitt addressed the Senate: “For our 12 new voting Senate members and new Dean, I’d like to make a few stage setting remarks about this year’s Senate Agenda:

“Last year was an unusually busy and productive one for the Faculty Senate. The Senate, very ably led by Rosemary Knight, passed legislation that launched the implementation of virtually all of the recommendations of the Study of Undergraduate Education at Stanford (SUES), a deep and broad two-year study of Stanford’s undergraduate degree requirements carried out by an exceptionally thoughtful and hardworking committee led by Jim Campbell and Sue McConnell.

“The SUES report recommended substituting a ‘Thinking Matters’ course and a set of ‘Ways of Thinking, Ways of Doing’ breadth requirements, spread over four years, in place of the previous 15-unit Introduction to Humanities (I-Hum) freshman year sequence and breadth requirements, along with some less dramatic changes to the writing requirements. SUES also recommended making Freshman Seminars mandatory.

“The Committee for Undergraduate Standards and Policy (C-USP), led by Judy Goldstein, then translated the SUES recommendations into draft legislation. The resolutions that the Senate passed last year implement the new Thinking Matters and breadth requirements over the next two years, and specify the formation of governance boards to promote and evaluate courses proposed by the faculty to satisfy the new Thinking Matters and breadth requirements.
“One key SUES recommendation that was not passed last year was to make Freshman Seminars mandatory for all undergraduates. There was concern that an insufficient number of freshman seminars was currently being offered to provide both adequate student choice and 100% access to Freshman Seminars, while preserving the right cherished by many of our faculty to be able to select among applicants for their Freshman Seminars.

“This year the Senate will revisit both of these issues, and we will discuss, starting today, the controversial topic of the highly variable sizes and four-year footprints of the undergraduate majors offered by our different schools, departments and Interdisciplinary Programs (IDPs).”

The issues currently on the docket for the next two meetings this Fall are:

**October 25**: A report on recent developments on online education initiatives will be presented by the new Vice Provost for Online Education, John Mitchell. In attendance will be the three new Associate Deans for Online Education from the Graduate School of Business, Engineering and Medicine.

**November 8**: Vice Provost for Undergraduate Education Harry Elam will present an update of the status and plans for the governance boards and other machinery involved in implementing the C-USP/SUES recommendations. There will be an executive session (an informal, off the record session) at 4:30 in the Faculty Law Lounge (2nd floor); refreshments will be provided. Only voting and *ex officio* members attend executive sessions.

**B. Committee on Committees (CoC)**
There was no report.

**C. President**
President John Hennessy had no report and there were no questions for him.

**Provost**
Provost John Etchemendy did have a report. “One of the wonderful things about the Senate is how at the beginning of the Senate, the first meeting of the year, you come in, you don’t know where your seat is, and it’s all been turned around, and I notice that this year the President’s over there, and I’m over here. It feels kind of like the House of Commons.”

[Laughter]

“I’m very pleased to be able to announce the new Bass University Fellows in Undergraduate Education. The Bass University Fellows award recognizes faculty for extraordinary contributions to undergraduate education, regardless of what school they come from. Even members of the professional schools who make extraordinary contributions to the undergraduate program are eligible for the Bass University
Fellows. Each university fellow position is named after a donor that made a significant contribution to the Endowment for Undergraduate Education established during the Campaign for Undergraduate Education. The overall program is named to honor Anne and Bob Bass, who provided matching funds to launch it. A few days earlier we celebrated Bob’s 20 years on the Board of Trustees. Bob has just stepped down from the Board of Trustees this last meeting. He and Anne have been incredibly generous to the university.

“Once faculty members move out of the Chair after their term is done, they are no longer named after the individual donor for their Chair, but they become, in perpetuity, Bass University Fellows in Undergraduate Education.

“The newly appointed Bass University Fellows in Undergraduate Education are:

Gabe Garcia, in the School of Medicine, The William and Dorothy Kaye University Fellow in Undergraduate Education;

Julie Kennedy, in Earth Sciences, reappointed as The Landreth Family University Fellow in Undergraduate Education;

John Eaton, in Engineering, the Martin Family University Fellow in Undergraduate Education;

Sheri Shepherd in Engineering, reappointed as The Burton J. and Deedee McMurtry University Fellow in Undergraduate Education;

Sarah Billington, in Engineering, the Milligan Family University Fellow in Undergraduate Education;

Fred Turner, in H&S, has been named the Akiko Yamazaki and Jerry Yang University Fellow in Undergraduate Education;

“and I leave two Senators for last:

Michele Elam, our colleague in H&S, has been named the Olivier Nomellini Family University Fellow in Undergraduate Education; and

Susan Holmes, in H&S, has been named the John Henry Sampter University Fellow in Undergraduate Education.

“I congratulate all of them.”

[Resounding applause]

V. Other Reports
A. Panel Discussion on Units in Majors
Chair Levitt turned to the reports. “Our first report today is a panel discussion on the number of units in undergraduate majors. You’ll recall that one of the goals of the SUES report was to open up the freshman year to exploration. At the same time, concerns were raised about possible encroachment on that new freedom by ‘creeping majors.’”
Participating in the presentation were Martha Cyert, Senior Associate Vice Provost of Undergraduate Education; Kam Moler, Professor of Applied Physics and of Physics; Brad Osgood, Senior Associate Dean for Student Affairs in the School of Engineering and Professor of Electrical Engineering and, by courtesy, in Education; Gavin Jones, Professor and Chair, Department of English; Rosemary Knight, The George L. Harrington Professor in the School of Earth Sciences and Senior Fellow, by courtesy, at the Woods Institute for the Environment.

With the aid of slides Professor Cyert began her presentation. “It’s an honor to be here. All of the credit [for this report] should go to Shari Palmer in the office of the Vice Provost for Undergraduate Education (VPUE), who worked together with two graduate students, Ethan Hutt, and Patrick Shorb.

“After I go through the data we’ll have the panel discussion.

“The reason for this discussion is that in the Senate last year, we spent a lot of time hearing the SUES Report and legislating some of its recommendations. In the SUES Report is a section about the majors that did raise concerns, including the question of whether [the number of required courses for] majors was increasing in size and whether that was increasing student constraint on course choice to a point where some of our high-unit-count majors are restricted and not accessible to all incoming students.

“As a step towards looking at these issues, you’re going to see data that we’ve collected in the last year. The purpose of this report is to launch a discussion and to give us a starting point for further study.

“The slides summarize the five pieces of data that I’ll walk you through. The main point of the report is a comparison of the size of majors’ requirements, and the choices that students have in their undergraduate career. Before we get to that we have to think about the currency we use to measure the size of these majors, the academic credit units.

“The federal definition of a credit hour is one hour of in-class time and a minimum of two hours outside of class.

“We looked at end-quarter evaluations for every single course that has an undergraduate component for the past three years. We are using the information that students self-reported on their course evaluations in a prompt to this question: ‘How much time did you spend on coursework outside of class?’ There were 225,000 observations collected over 3 years, 2009-10, 2010-11, 2011-12.

“That brings us to the first major limitation and caveat with the data; when students answer that question about hours they get a choice of different ranges of hours. They might answer, ‘I spent five-to-ten hours on this class,’ or ‘ten-fifteen hours on this
class. They don’t give a single number. The way we dealt with that was to take the average of each range and assign a single value to each course evaluation report. Similarly, students can take courses that may be offered for a range of units, and we took the average of that range.

“For any department that’s interested in seeing these data, we’re happy to provide [them]. I also want to note that, especially for majors that have a relatively small number of students enrolling in that major, the numbers can often be swayed by one large, introductory course.”

“First, you will see that the average overall [number of hours] for Stanford does come out amazingly close to two hours of outside work. There are slight increases over the last three years, but we don’t know if that’s a significant trend. What I’m showing you is a random sample of different majors to give you a sense [of the findings]; we selected an IDP [HumBio], some social science, natural science, and some of the engineering majors.

“It’s clear that the two engineering majors show significantly higher numbers of hours or work outside class. To some extent that is by design. In mechanical engineering, for example, I’ve been told that, especially for the upper level courses, the [faculty] made an explicit decision to have a unit represent three hours of outside work.
“Now, let’s look at historical trends in the size of the major. I have to explain the data and the methodology. The analysis turned out to be very time-consuming. We did not do this analysis for every major. Instead, we chose a selection of majors. In each case, Ethan, our graduate student, had to pour over Stanford Bulletins from these years and [determine] the courses required for the major and then look up the number of units.

“We found that sometimes the Bulletins, depending on the department, might present the requirements for the major in a slightly different way. For example, for some majors it will state, ‘You have to take either the Math 20-series, or the Math 40-series, and then you have to take Math 51’ and then [go on to say] ‘here are the other requirements for the major,’ whereas other majors in the bulletin state, ‘You have to take Math 51,’ and don’t explicitly say that requires you to take one of the earlier math courses. What we did to try to make these numbers consistent was, in the second case, if Math 51 was listed as the first course in the major, we added the units that students would have to take to do either the 20-40 series, or use AP credits to be able to take Math 51.

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<th>Unit of Credit Requirements for selected majors 1991-2011</th>
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<tr>
<td>[STS is Science, Technology and Society.]</td>
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<tr>
<td>“There are majors [such as] Mechanical Engineering, that have not changed one little iota in 20 years, so we have to congratulate them for consistency.”</td>
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[Laughter]
“And it’s interesting that ME is among one of the highest unit-count majors.

“Overall, there’s a variety of trends. You’re going to hear from representatives of Physics, one of the few majors that have gone down in unit count. You’re also going to hear from English, that has made a decision to increase the number of required courses, from Earth Systems and from Engineering.

“It is true, that most of these majors over the 20-year span have increased.

“In addition to the units that students have to take for their major, we added to that units that they have to take [to satisfy] the general education requirements to see what’s left over. We call that ‘free choice’—classes students can take that don’t satisfy any requirements, but that they just want to take. One big caveat is that we used the old general education requirements. As you know, we passed a new set of requirements in Senate last year. I think it’s going to take time to know what kind of footprint they’re going to put on the general education part.

“Amount of free course choice in student career 2010-11

“In each case we’ve shown two separate scenarios to represent two types of students. On the left [bar of each pair of bars] you have a student that comes in with some advanced placement, for example, placing out of the language requirement, so in each case the student on the left has more room for free choice. On the right [bar] what we’ve done is to plot what the experience is for a student who comes in [with] no AP credits, not placing out of even the language requirement. We assumed that those
students in the general education portion of their education would manage to double-count some courses for multiple requirements.

“Looking at these two scenarios in context, it’s important to note more students are coming into Stanford without any AP credits. For example, this is shown in 2010-2011; in 2011 25% of our students graduating used no AP or transfer credits. All of their units were taken at Stanford.

“I think these two scenarios represent significant pools of students of Stanford. Again, you’ll see the experience varies somewhat across these different majors.

“The bar is set at 180 units, because that’s the minimum number of units you’d be graduating with at Stanford if you took 15 units each quarter for four years. That allows me to segue into our next point; which is that looking at this landscape, notice that we’ve gone up to 200 units; that’s because we also looked at how many units students are actually graduating with, and most are graduating with more than 180 units.

“This next slide [not shown] is the distribution of students with respect to how many units they graduate with [from 1991, 2001, 2006, and 2011]. Over the 20 years period there’s been a shift towards students taking more units. I want to make some clarifications: What we’re showing here are only the units that students actually took at Stanford, so this does not account for AP credits or transfer units. I should point out that the 2011 data are for students that entered in 2008 and graduated in 2012, whereas all the other data are for any student that graduated in that year.

“We can generally see an increase in co-terms. For minors degrees, maybe there is generally an upward trend.”

Professor Cyert summarized her presentation: “The number of units required for a major is increasing and students are taking more units during their Stanford career. There may also be trends towards getting multiple degrees and more co-terms. I think the findings raise these questions: Are our majors accessible to all of our students? Do we think that there is enough room for all students to explore different areas? Perhaps what this will do is stimulate us to ask more questions about what types of activities and units students are taking during their career here.”

[Applause]

The four panelists sat in chairs facing the Senate and began their individual presentations.

Professor Kam Moler was first to speak. “I’m from the Physics department. In the late 90s there was a trend of dropping majors, nationally, which was more pronounced at Stanford than at other schools; in addition, there was new interest in Physics departments, for reasons completely independent of the numbers of majors, towards
making our major accessible. The American Physical Society is quite active in presenting materials to help departments think through their major and we took advantage of those materials. Pat Burchat [Professor of Physics and Chair, 2007 – 2010] led a process that involved a number of faculty, including me, looking at the question: ‘What do you feel are the international norms for a physicist, balanced with what do we feel it means to be a physicist?’

“In the interest of making the major accessible and leaving room for students who plan to stop at the bachelor’s degree to do more exploration, we decided to drop four courses. We subsequently increased a number of courses from three-unit courses to four-unit courses to more accurately reflect what we felt the true workload was, and the net result is that the major is now more than ten units less and even a significant workload less that it was in the 90s. The number of [students enrolling as] majors increased from a five-year average of slightly under fifteen to about 25, and that was really coincident with the year between 2001 and 2002 when the new requirements were implemented and a new group of people was declaring.

“For most of us, it’s nice to have more [enrolled student] majors but the main points are that we wanted the requirements to reflect what we felt a physicist should be and make sure that the major was accessible to people who wanted to take it. We have additional recommended courses for students who plan to go for a PhD and many of our majors take significantly more than the minimum number of courses required for the bachelor’s degree.

“You’re also going to hear from the English department. What characterizes what both of us are going to say is not whether the number of units goes up or down, but that we went through the process of asking, ‘what does it take to be a physics [or English] major and are we achieving what we want to achieve at this point in time?’”

Professor Brad Osgood was second to speak, “I want to say a little about Engineering majors and the unit count. Engineering is generally thought to have high unit-count majors and that’s true and there’s a reason for that. The number of units in our major is largely driven by accreditation. Five of our undergraduate programs are accredited: Civil Engineering, Environmental Engineering, Chemical Engineering, Mechanical Engineering, and Electrical Engineering. They’re accredited by ABET, the Accreditation Board in Engineering Technology. Although the other majors are not accredited, we pretty much use ABET guidelines for all our majors, so there isn’t a lot of variation from one to another.

“The requirements are set to meet ABET’s expectations, [which] are that there be a year of math and science, which is 45 units, and that there be a year and half of engineering depth, which is 68 units. You add those together and get 113 units. We ourselves also require a course in technology and society, which is a three-unit course.
“So that’s 116 units! Ding! Game over! That’s how we get, roughly, to that count. Although those are ABET’s requirements for the accredited programs, we use those as guidelines for all of our majors. We are the only school, unlike Humanities and Sciences, and Earth Sciences, that have these school-wide requirements, so all the majors are required to take a set number. There’s some variation, but all the majors are required to take a certain number of math and science courses, and a certain number of engineering depth and this is largely governed by ABET requirements.

“We haven’t done the exercise of seeing how our majors would change if we didn’t have the ABET requirements. We could, I think, have a little bit more flexibility, but I don’t know that there would be that much difference. It’s something that we will probably think about, but right now, the way our majors are structured, largely governed by these national norms, national standards.”

Professor Gavin Jones: “I was asked to give the perspective of a Humanities Department with a fairly small unit count. It’s very interesting to see the statistics Martha [Cyert] presented; students frequently tell me that they struggle to fit even a single English class into their busy four years at Stanford, and undoubtedly, the number of our double-majors has declined in the last few years. We used to have a lot of English/HumBio double majors and double majors in other subjects, and that’s gone down quite a bit.

“The point I would make—and the point that Kam [Moler] made too—is that departments should regularly and rigorously assess the nature of and size of their major, which is what we did a couple years ago. Students have a certain number of units to spend over their four years and some majors obviously cost more than others, and there’s an ethical issue I think, in deciding what’s right and fair. It’s a particularly fuzzy question in the humanities where external pressures do not determine subject requirements in a way that Brad [Osgood] mentioned, such as accreditation boards, or the prerequisites of graduate programs. Would an English major of 120 units be a better major? Well if it was done well, yes, I think it would. It would give students a deeper knowledge and a broader comparative sense of the subject, but I’m not sure that students would buy the English major at that rate, nor would my colleagues think that such a price was a fair one, or that the question of size was the primary one.

“We can look at the question of unit sizes objectively and attempt to establish caps, or try to balance one’s major against the ideal of a liberal education and the need for freedom to explore courses outside one’s major and outside one’s school. We looked at the question of units subjectively when we assessed our curriculum two years ago. We surveyed students; and we thought about the nature of our subject and the basic structure or ideal narrative that will give students a strong foundation in the subject, a kind of competency enough to thrive on balancing knowledge and freedom. The result of our process was, I think, an elegant new core curriculum and a revitalized English major requiring about 70-75 units, an increase of about ten units. The most important point is our unit count was the result of a process of building and thinking from the ground up.
Professor Rosemary Knight: “I’m going to say a few words about the Earth Systems program in Earth Sciences, which is tied with Engineering for top unit counts. The question we have to ask is—is there a problem? The unit-count in Earth Systems is high because of the nature of the program. It’s an interdisciplinary program (IDP) that is reviewed every five years. The nature of the program is that we’re trying to prepare students to deal with the complexity of real-world environmental problems, so we require them to have a [broad] multidisciplinary and interdisciplinary curriculum package. When we look at the specific courses that are required, many are designed to provide this breadth.

“While the program doesn’t leave a lot of room for what was referred to as ‘free choice,’ There is a lot of room in the program for what we refer to as ‘guided choice.’ It’s interesting that a lot of students very much enjoy this guided choice. Students are required to take a course in a category, but in that category there’s not one course but perhaps ten courses for students to choose from. Even though there are a lot of units, there is considerable flexibility in some of the requirements for the Earth Systems major. It’s also important to note that some of the required units necessitate Earth Systems students to have the kind of experiences that were highlighted in the SUES Report. Nine units are for student internships, so students go off-campus for a quarter, working with a private company, or a non-profit, or in Washington. Another four units are for students to prepare a technical presentation linked to their internship, which is part of a required capstone program. So looking at the numbers themselves without really digging down and saying, ‘what are we doing with these numbers’ doesn’t get at the question of, ‘is there a problem?’

“There was a point a few years ago where the number of required units was high and then it came down. That was driven by this kind of secondary unit count, in which we discovered that some of the courses we were requiring had increased the number of prerequisites. So we had to start looking carefully at some of the courses that we were requiring because they were adding prerequisites.

“Another point to keep in mind is that Earth Systems is an IDP, and, as such, every five years, is reviewed by C-RUM [Committee for Review of Undergraduate Majors] and unlike courses for departmental majors, if C-RUM sees a problem that needs fixing, and it doesn’t get fixed, an IDP could lose its degree-granting authority. In the 20 years of the Earth Systems Program, there have been questions about unit counts, but it’s never been a serious problem.

“Finally, a great way of figuring out if there is a problem is to talk to the students and when I talk to the students in the Earth Systems program they’re drawn to it because of ‘guided choice’—this kind of multi-disciplinary, interdisciplinary experience. Providing the kinds of courses they need and the education we want for students in that area is how we get that unit count that puts us up there with engineering.”

Chair Levitt, “Thanks to the panelists for your different perspectives.”
Chair Levitt opened the floor for questions.

Provost John Etchemendy began the discussion. “I have a comment inspired by Gavin’s [Jones] observation that he’s seeing fewer double majors in English, and I noticed that that actually is a kind of a trend—the number of double-majors [overall] is dropping. I don’t know if all of you realize this, but one of the rules the Senate has imposed (because the Senate is in charge of degrees) is that if you’re double-majoring, and if a course could [satisfy the requirements of] both of those majors, it can’t count for both, so if you take it for one major, then you have to find something else to take for the other major. For example, if you’re majoring in Computer Science and Symbolic Systems, or Philosophy, and a logic course could count for both, you can’t do it, and instead you have to take another course or another logic course. That has always seemed insane to me, because it must be based on some sort of puritanical view of ‘getting away with something.’ If a major is meant to represent that you have mastered a body of knowledge, and if that course is a fine component of that major individually, why shouldn’t it fill a fine component when you’re doing a double major? I’m wondering if, given that drop in the number of double majors, whether or not the Senate would be interested in asking C-USP to rethink that policy and consider whether we really believe in whether we’re really as puritanical as we used to be?

“The background is that I think that one of the things that we see nowadays is students who would like to major in the humanities often try to do a double major as a way of doing it. So I’ll major in English because I really love English, but I’ll major in Mechanical Engineering to please my parents. I think that we should open that up as much as possible to allow that kind of thing.”

Professor Tom Wasow commented, “With respect to what John [Etchemendy] has just said, I recall in my days as Director of Symbolic Systems that we had a lot of students who wanted to do a double-major in computer science, and [if a course was] explicitly required for both majors they could double-count. So it’s not quite as bad as you made it out to be. The question I was going to ask Brad [Osgood], had to with this notion of ‘guided choice’ whether ABET gives the Engineering majors enough freedom so that the requirements that are imposed by ABET actually allow that guided choice?”

Professor Osgood answered, “Certainly, you can specialize. Electrical Engineering is an accredited department; they have different tracks within Electrical Engineering so you can specialize in one area, and similarly in Mechanical Engineering, so there is a certain amount of flexibility in the requirements as to the minimum number of units you have to satisfy. But the fields themselves are pretty diverse these days, and I think if the curriculum at the undergraduate level reflects that diversity, you have a certain amount of maneuvering that can happen. Computer Science, which is now the
largest undergraduate major on campus, is not an accredited program, but it still requires a lot of units and has a lot of tracks. The faculty went through a major redesign in their curriculum a few years ago. [The result was the degree requirement] specifically had a lot more flexibility within that major and the popularity of that major has taken off.”

“I think there’s some historical perspective to explain part of what’s happened with double majors. You recall formerly we didn’t have minors [degrees]. I think the notion of introducing minors was driven partly not only by allowing students to diversify, but also, equally, by getting students out of the trap [created by piling] their time up with courses, so they didn’t go overseas, didn’t think about honors, or anything else with that. And I think that’s worked well for us.

He continued, “I had one other question I wanted to ask the vice provost, Stephanie Kalfayan, who probably knows this better than anybody. Given the federal definition of unit count, does that mean that in the accreditation process we will actually have to demonstrate that all our majors adhere to that kind of work level requirement?”

Vice Provost for Academic Affairs Stephanie Kalfayan replied, “I couldn’t have planted that question so well.”

[Laughter]

She continued, “In fact, when the evaluation team is here in February they’re going to request syllabi from departments, particularly departments that have what they think of as ‘non-standard’ courses, [like] Studio Art, internships, directed reading, etc., to try to ascertain whether in fact, all of our classes meet that federal definition.”

Professor Debra Satz said, “I have a question about one way of thinking about this. When you think the cap is 180 units and we have majors that require 120 with the general education requirements, you might be worried about limited time for free choice, but then you realize, ‘oh we have a little more room because the number of units students are taking is 190-200.’ Do we know what the students are doing with those extra units? Are they just adding to their majors and taking more courses in the major? Or are they actually using those extra units to branch out and take other courses?”

Professor Cyert replied, “That’s a great question but we don’t know the answer.”

Professor Russell Berman commented, “Thank you for this wonderful report and raising these questions. The Provost called the major an indication of mastery of a body of knowledge. I agree with that; that’s a student learning perspective on what a major is. But we’re talking about counting units. I wonder if there’s a way to emancipate the major from this unit count? Can there be components of the major that aren’t measured in units? For example, I wonder about the second language majors. If students enter with strong second language competency in French or German, they
can move to the head of the class and don’t have to take the introductory courses but they still [are required to fulfill] the same number of units. I think somehow we should have a differential unit count.”

He stopped and reconsidered, “Well we don’t want to reduce the number of required units, because that’s how we collect tuition.”

[Laughter]

He continued, “But we ought to be able to give that student an opportunity to get the major done more quickly, because that student will have mastered the material at the same level as the student who’d begun and completed his full major. I think that the way we count what we do is getting in the way of achieving what we want to achieve.”

Professor Caroline Hoxby observed, “One thing that struck me is that one way to interpret the numbers is [to know whether] our students have less free time outside of academics altogether. The number of units they’re taking has gone up quite a bit, between the difference in the median values for 1991 and for 2011, which equals ten more units, and the [difference between 1991 and 2011] at the 75th percentile, which is fifteen or sixteen more units. Even though the majors are increasing their units, if we look at the number of free units the students have, once you take into account what it is they actually do, they may have the same number of free units as before.

“I think there are two ways to think about this. Either our majors have expanded their number of units and we’ve put pressure on students to take more total units, so that they can still have a fulfilling undergraduate experience, and what we’re crowding out is the other things that undergraduates do. Or, we have unit inflation. A unit today may be worth less than a unit in the past, like dollars. Those are two very different explanations; one is that the value of currency is changing and there’s not very much else happening, and the other is that the student’s experience is changing. I wondered if we could determine which is the case by asking that question better on the student evaluations about hours spent outside the classroom.

She continued, “One thing we know from timing surveys is that they turn out to be a quite complicated thing to perform. People do not report use of their time. For instance, if someone were to ask me, ‘How much time do you spend outside of class?’ and I know that I have to be in a lab from this time to this time on Tuesdays and Fridays, I will remember those hours and put those in accurately. If someone asks me the same question and I was reading a novel, like most people I would be much less clear about how much time I spend with what are described as ‘indefinite activities’ or activities that don’t have set starting times and ending times...In our student evaluations [we should] prompt them to say what counts as hours outside of class, [and remind them] ‘don’t forget that if you’re working on a problem set with your friend, that would count, too.” That’s what they do in timing surveys. They
learned that you have to ask about the nebulous things; otherwise people just remember the things that are set.”

Professor Cyert responded, “Along [that same line] is the example of two students taking the same course who spend radically different amounts of time on it. We did see a trend where students when evaluating a course of evaluation, if they knew what grade they expected to get in the course and were expecting a lower grade, tended to report more time spent on that course.”

Professor Susan Holmes commented that in the Economics department, it was noted that over the years the amount of time the students spent per unit went down, while on the number of units students were taking increased. “So around 1999, the Econ department decided that most of its undergraduate courses should be five units instead of three; [this implies] that the unit count isn’t quite right.

“There’s another thing you have to realize. [In a way, undergraduates have more than 24 hours a day.] If they’re spending an hour doing their homework they’re also watching a movie and reading a website.”

[Laughter]

Professor Andrea Goldsmith commented, “This is a wonderful study. I know we’ve talked about this for years and years in the Senate, and this is a very comprehensive set of data. But for me, the study raises more questions than it answers. If you look at the trends, why are there more co-terms? Is that student-driven or driven by certain majors? Is this true across all majors, or only certain majors that lead to professional degrees? Is there a problem? Even saying you know, ok, students are taking more classes, what are they sacrificing as a result? I would like to see more data. I know it’s not easy to get more data, and I’m not saying we need it tomorrow.

She continued, “I’m asking questions about these trends—are they student-driven or parent-driven—that [parents] want the students to major in a major that makes money while the students want to do something else? I’m just trying to understand better what these data really mean. Ultimately we want to answer the question—do we have a problem with units? And if so, how should it be addressed? I don’t think there’s enough information to answer that question, but it certainly is a start.”

Vice Provost for Undergraduate Education (VPUE) Harry Elam agreed. “Exactly, Andrea [Goldsmith], it’s a start. As Martha [Cyert] said at the beginning, this [survey would] raise questions more than providing answers to them. And to Debra’s [Satz] point, as well as to Caroline’s [Hoxby], what our office should take on is exactly those questions. What are students doing with these extra units, and why? What does it mean that we’re seeing this upward trend? What’s happening to student time?

“We also know from my office regarding the number of the maximum units a student can take—we set the bar at 20—that we are getting more and more petitions to take
more than 20 units. Why is there that rise? These are some of the questions we need to look at in thinking about the undergraduate experience.”

Professor Osgood interjected a question for Professor Goldsmith: “Andrea, do you want to guess how many Engineering students get co-terms?

Professor Goldsmith started with 80% and then settled on 50%.

Before Professor Osgood could answer, VPUE Elam replied: “The WASC [Western Association of Schools and Colleges] data show only 4% right now are getting honors, but 40% are doing co-terms. So what is that telling you?”

Professor Osgood replied, “Well, a lot of [other] schools don’t use units, they just use number of courses to take.”

Professor Cyert added, “A lot of places do legislate the size of the majors, and say exclusively that courses required cannot exceed a certain percent of the total.”

Professor Stephen Stedman commented. “You mentioned that more students are applying for petitions to take over 20 units. Are we granting a higher percentage of those requests? Is it becoming commonplace for us to just grant exceptions to the 20 units?”

VPUE Harry Elam replied, “It depends. If the units represent activities units, like a dance class, that’s the easy one to say yes to. [Whether to approve a request for more than 20 course units] depends on the students’ academic achievement and their record, so it’s hard to say whether we’re granting more requests at this point.”

Professor Eric Roberts was next to comment. “I wanted to ask for one particular piece of data, that I think would be useful and that’s the trend lines in the number of students electing the majors, because Caroline [Hoxby] talked about different possibilities as to why students are taking majors, including whether it’s inflation in units. It seems the simplest explanation for the [overall rise in units for majors] is that more people are moving towards higher-unit majors. All of the data we have suggest that’s true. This would also explain the increased number of co-terms. I think we don’t need to look for hard explanations if there are easy ones staring us in the face.”

Martha Cyert replied, “Brad [Osgood] just sent me data this morning and in that 20-year period, it does seem that more students are Engineering majors.”

Professor Roberts asked, “So English and History have fallen out of the top 10? Computer Science has just eclipsed the others this last year.”

Chair Levitt, “Speaking from the chair, in addition to the trend towards the professional degrees that could be driven by the job market and the economy in general, some engineering state licensing boards are moving towards a five-year
degree requirement for engineering licensure, which is driving some engineers to go to a fifth year for the co-term. There are certainly some outside trends that are [having an effect].”

Professor Jim Campbell, Co-Chair of SUES, had this to say: “I, for one, am skeptical of the idea of unit caps. I haven’t looked at this for a while, but when we were doing the research for SUES I found four instances when the Senate has previously voted unit caps; the first one being the very first faculty meeting in 1892.”

[Laughter]

“So they [unit caps] haven’t stuck. I worry that moving in that direction would resuscitate the notion that general education and the majors are at loggerheads or competing in a zero-sum game, when the biggest point of our report was to rethink that idea. The bigger concern for me is a cultural one, and Provost Etchemendy and others have talked about this as well. Last year we discovered there existed a culture in which students thought of their major as their real education. And that tended to be instrumental in how they were fulfilling other things. Some of us became convinced that students did that because they were mirroring the way many of us faculty think about educating undergraduates—namely, that our students are our majors and we can’t possibly send somebody out into the world without our imprimatur unless they’d done such and such. We have an impoverished sense of the other things that we want for our students while they’re here, including the idea that maybe they can learn something from the rest of you.

He continued, “And it shapes our understanding of who we’re teaching, and so I resonate strongly with what Gavin [Jones] and Kam [Moler] said about engaging in a reflective discussion about what it is you want in your majors, keeping in mind that it’s not only about the major, but what we want for the totality of our students.”

Professor Mark Zoback said, “This is a question for Harry [Elam]: With these data in hand, and given comments like Rosemary’s [Knight], that a high unit count in our systems is basically what the students want to accomplish in that major, are you going to be doing a survey of student attitudes that we can compare against these numbers? [If the number of units] simply reflect what the students want to do, then we’re meeting those needs and there’s no problem to be solved.”

VPUE Elam replied, “That’s a great question. We want to assess the attitudes the students have. [Conducting] surveys and focus groups would be part of the task. Assessment [of the student’s views] is a big thing coming out of SUES. We want to understand how well the things that we’re implementing are working. That’s why the question I mentioned before—what are students doing with their time—is important to understand; and the choices they’re making as Eric [Roberts] and others pointed out. So yes, we will do that.”
Professor Terence Ketter of Psychiatry commented, “It’s very interesting how you can measure and present it [units required for the major, general education and choice]. Reviewing residency applications, it’s very interesting to look at grades and majors and things like that, but we’re usually looking for something in which people distinguish themselves and that can be harder to measure. I don’t know how that can be assessed in the population of students who graduate from Stanford, but they can distinguish themselves in that they’ve got a major in subject X from Stanford. If they started a businesses, or worked in a free clinic, or something else that fleshes them out as a person, that will make them interesting to individuals who review their résumés.”

Chair Levitt concluded, “We will discuss this topic further later in the year when some of these other questions begin to be resolved. Many thanks to Martha and the panel for this stimulating presentation.”

[Applause]

B. Committee on Academic Computing and Information Systems (C-ACIS) Annual Report (SenD#6668)
Chair Levitt introduced the second report. “Howard Zebker, outgoing Chair, will present the annual report of C-ACIS for 2011-12. Matthew Ricks, Executive Director of Computing Services in IT Services, and Vijay Pande, Professor of Chemistry and current Chair of C-ACIS, will also say a few words.

Both the incoming and outgoing members of C-ACIS were invited to hear today’s report.

Using some slides, Professor Zebker began his presentation. “Thank you for giving me the chance to report on what we have been doing in C-ASIS over the last two years, since we didn’t report last year.”

C-ACIS members:
• Trevor Hastie, Statistics
• Nadeem Hussain, Philosophy
• Zephyr Frank, History
• Franco Moretti, English
• Roy Pea, Education
• Christopher Manning, Linguistics
• Parviz Moin, Mechanical Engineering
• Vijay Pande, Chemistry
• John Bender, co-opted- Chair, C-LIB, English/Comparative Literature
• Margot Gerritsen, CoC Liaison, Energy Resources Engineering and ICME
• Howard Zebker, Committee Chair, Electrical Engineering

Ex Officio:
• Randy Livingston, Vice President, Business Affairs
• Bill Clebsch, Executive Director, Information Technology Services
Ganesh Karkala, Executive Director, Administrative Systems
Michael Keller, University Librarian, Director of Academic Information Resources
Tina Darmohray, Information Security Office

Guests from Stanford Schools:
• Staff (deserving of the most thanks): Phil Reese

“I wanted to include a slide of the members of the Committee, not only to thank the people who served on the committee last year but to point out one of the things that’s different about C-ACIS from the other senate committees, which is that there’s a large contingent of people outside of the faculty who attend this committee every meeting. They are largely professional staff that we have at ITSS (Information Technology Support Services); we have representatives from all the schools and several programs, and other groups on campus; this is one of the few places where faculty and staff actually can meet on a regular basis and consider all aspects of this subject.

“We looked at two major topics in the past year. I’d like to give you first the conclusions and then some of our recommendations.

• University computing infrastructure
  – Wired internet system works well
  – Stanford lags in providing consistent and reliable wireless access
• Online education
  – Proven very successful in a handful of classes
  – Remains to be defined in many contexts
  – Classroom experience is still being tested

“We looked at the university computing infrastructure as a whole, and we concluded after a number of meetings that we have a wired Internet system on campus that works well. Any time you’re near a plug you can plug in and get whatever you want whenever you want to get it.

“But we’re not doing nearly as good a job at providing wireless access; that goes both for the WiFi connectivity to our individual devices and to our cell phone connectivity. You walk into the basement in a lot of buildings on campus and your cell phone dies. And the students noticed this first. The students are highly integrated into the mobile device world, and if we’re going to make it possible for them to take advantage of things at Stanford, we have to have wireless access. It’s not just the hardware that’s bad; in terms of the wireless stuff, a lot of our students try to access services on iPhone and become quickly become frustrated. And students need to get access to all that kind of stuff, so that really is an important issue.

“We spent about half of our meetings this year discussing online education. There are many activities going on at the university related to online education. We had
folks involved in programs that have to do with online education give presentations. Some basic conclusions are that there are certain kinds of classes for which online education has been extremely successful and in which we think it’s going to play a major role, but the impact of online education remains to be defined for most of the classes on campus.

“Any class we already have has a fairly low number of students and a lot of interactions between the faculty and the students; those classes are already essentially flipped, because the time in class is devoted to that kind of student-faculty interaction. How to best utilize online education to augment and supplement that class experience is something I think will probably emerge over time. And there are the new associate deans, and all kinds of things going on campus to look at that further.

Recommendations – Infrastructure
1. Expand and make consistent wireless Internet and telephone. This may entail either reprogramming or augmenting the IT Services budget.
2. Integrate student, staff, and faculty use of commercial service solutions such as Gmail and Google Docs into secure Stanford methods and procedures.

“The recommendations, based on what we have found, is first of all, we need to make more consistent and more useful the wireless internet and telephone system on campus. This is a big issue because of a lot of historical things. In fact, if you look back at its history, the wired Internet was always viewed as a piece of the university infrastructure and something that was required for the university to operate. In contrast, for whatever reason, as the world started going mobile, wireless was never done at the university level as a whole. Every individual department, in some cases, schools, in many cases, buildings, or even labs within the buildings, did their own thing. Now we’ve done a better job of putting out wireless access points and wiring them into the overall wired infrastructure than we have in the past, but this has never been really addressed by ITSS as a whole. Even though it’s a lot easier to get a new device and register it on the university network — it’s perhaps not as easy as it could be.

“This also comes up against issues that have to do with privacy and security. The Medical School has been out in front of this because they have to deal with things like HIPAA [Health Insurance Portability and Accountability Act] requirements, and there’s a lot of issues that need to be thought about and folded into this as well, as we make things more accessible and useful in the wireless world.

“The second thing has to do with moving some of our central university services to cloud-based solutions. You’re going to hear more about that from Matthew Ricks. Many of you are going to have questions about that. You may not know that your email is about to move into the cloud and that there’ll be changes in calendaring, so it’s good for you to have a chance to ask him what’s going on.”

Recommendation – Online Education
• C-ACIS should serve as a central focus for summarizing campus experimentation with and assessment of online teaching
• Include both infrastructure and exchanges of best practices.

“In terms of the online education, because on campus there are so many things going on, we’re going to make a recommendation that we deal with it internally, that C-ACIS will still serve as a forum where people can come and exchange best practices, and keep people from the various schools involved in what another school might be doing. There aren’t too many places for that to happen on campus; C-ACIS is a natural place for that to occur, so we’ve taken that as an internal recommendation of something that we thing we should be doing.”

Recommendation - Student Input
“One of the things that we did this year that we hadn’t done in my previous years on this committee, was that we devoted one full meeting to a student panel to hear how students interact with IT services and academic computing on campus. It was really eye opening from a number of perspectives. It’s not that they necessarily told us stuff we didn’t know, although there were a lot of details that none of us would have been aware of, e.g., how hard it is to download your homework assignment from so and so’s class. It was having the students describe their experience in this wireless world, trying to interact and live their Stanford life in a way that is consistent with the rest of the things that they do. Our students—they’re on Facebook, they’re on Twitter—this really is the communication medium and we have to be aware of that. Having the students come and discuss this subject was considered to be really useful by a lot of faculty in the room and a lot of the IT staff. So another recommendation is—at least for this committee, and perhaps for other committees on campus—devoting time specifically for students to have a formal way to interact with us is always a useful thing to do.

Matthew Ricks took over. “I’m Executive Director of Computing Services within IT Services. I’d like to highlight a number of commercial offerings in the cloud services area, which are becoming attractive, increase functionality, and lower costs. We know that folks are using these offerings today from personal accounts. The challenge is that if we use those services without contractual protection, we can put Stanford at risk.

“HIPAA is the Health Insurance Portability and Accountability Act, as Howard mentioned. This is something that is key to the Medical Center, or anybody in the School of Medicine, or anybody dealing with PHI, Protected Health Information. And also FERPA (Family Education Rights and Privacy Act), which includes student records. These are things that, unless you have a contracted service, you’re not really protecting Stanford in the best way possible. There are also e-discovery and subpoena concerns.

“Without a contract you’re potentially putting Stanford at risk because service providers can grab data at court orders, without a contract in place. Also privacy
protection, protection against data mining and use of customer data [are at risk]. Without a contract these are things that on a consumer side vendors can make use of in ways about which you may not be happy.

Another issue is accessibility; ensuring these services are available to all is key. For folks with disabilities or special needs, we need to make sure we have contracts in place to make sure that we’re covered.

“IT Services is working to get contracts in place to look after Stanford’s protection. One of the first steps is getting a Business Associate Agreement, or BAA, which is required for protecting HIPAA. Not all of these cloud providers are open to entering into a BAA at this point. BAA is something that basically indemnifies the University, addresses compliance concerns, and helps safeguard PHI, the email calendar, systems that we’re using within the university. While we are making strides, progress has been measured, due to these legal and security concerns.

Leveraging Cloud Services

“Let’s talk about specifics, first Google. Many members of the Stanford community are already using services in one degree or another, for example, forwarding their Stanford email to personal Gmail accounts and Google calendar accounts. While we do have a contract with Google, we still need the BAA to protect all the data within the system. Google has not yet committed to entering into a BAA until 2013, which prevents us from moving a large part of the HIPAA-covered entity so folks dealing with the Medical School, or interacting with the Medical School are not able to
migrate into Gmail and Google Calendar. But IT Services is ready to migrate any school or administrative unit to these new solutions as long as it’s not associated with the HIPAA-covered entity. For instance, we’ve already migrated all the undergrads into Gmail, and Calendar; we just wrapped that up over the summer. Earlier the Law School went over to Google Apps. Last summer the Graduate School of Business also went over to the full suite of Google Apps. These are communities were able to go because they’re not dealing with PHI.

“One cloud service that has entered into a BAA with us is Box for document sharing and storage. Box at this point has over 3000 users within Stanford with over 1.5 terabytes [a terabyte is one trillion bytes of 1,024 gigabytes] of data within the system. This is a very easy-to-use service and you can get to it now by going to Stanford.box.com. It’s a service that is available today for document sharing.

“Things that are on the horizon include a deal with Amazon, a campus-wide agreement, to look at the billing for basically using it for compute cycles and large-scale storage for research computing.

“Lastly, for research or online archives we’re looking at a solution from Panzura that provides a cloud storage gateway that encrypts data as it leverages cloud solutions. One option we are looking at is the San Diego Supercomputer Center. They have low-cost storage, and are on the science network, so unlike Amazon, we won’t have to pay for network transmission of data coming in and out of the system.

“This is just a quick briefing of the cloud-based solutions that IT is looking to roll out, and their current status.”

Chair Levitt opened the floor for questions:

Professor Andy Fire of Pathology was first to comment. “This is all wonderful. One of the things though, that some of us in the Medical School have seen, is a sort of a creeping definition of Protected Health Information that starts with what needs to be protected, and by natural extension, expands to everything that happens in the Medical School, whether it be the sex life of a worm, or the number of bacteria in a test tube.

[Laughter]

He continued, “Suddenly, all of that becomes PHI, because we’re not allowed to make that decision. With no distinction between patient information and data from experiments like worm experiments that are unrelated to any patient, across-the-board protection becomes very expensive. For most of non-patient-related science, sharing data is the norm and it allows scientific colleagues from all over to figure out the experiments and tell us what they mean. This kind of scientific exchange of non-patient information is not going to hurt anybody and it’s not going to break any laws.
So I think it’s very important, as you go through this, to make sure that definitions don’t extend beyond what truly is PHI.”

Mathew Ricks replied, “That’s a great point; one that will be carried back to the folks we’re working with in the School of Medicine.”

Professor David Palumbo-Liu commented, “I’m glad that you are asking students about their usage and getting their input, and I’m wondering if we could get data on what devices students actually use, especially in terms of access on the iPhone, and whether can students afford iPads or tablets. If you put more and more services on wireless, can they afford the cost of the upgrades?”

Howard Zebker responded, “That’s a good point. I can tell you some of the impressions that I have from listening to the various presentations we’ve had, briefly, but clearly we need an effort to figure that out better [how to get that information]. There has been a transition from laptops to smartphones that’s pretty obvious. There are certain units within the university and the Medical School, in particular, where iPads are becoming a central piece of the educational process. Some of the classes require students to have iPads on which they do the homework and interact in class. I was viewing that particular aspect more in terms of the question of the online education where the line becomes blurred: If you’re in the classroom but you’re connecting to wireless, is that online education or is that regular education? But I take your point; and we will look at trying to collect some of that data over this year.”

Professor Bruce Clemons asked two questions. “About Box, you said it was one and a half terabytes that’s used. [You need much more capacity for] video. I think there is a need for massive storage associated with these new facets. What are the issues and plans to address that or do we have to go to Fry’s or Costco and buy something?”

Matthew Ricks shook his head, “We’re definitely trying to avoid that as a solution.”

Professor Clemons continued, “My second question is about video content and copyright issues. I am teaching a class on solar cells, fuel cells, and batteries and for all of my classes, I bring in things from other published papers, for example, and I show other people’s data and reference it properly, and discuss it. But in this online class, delivered free to the world, I can do none of that, apparently. That’s an issue that greatly restricts what one can do in these online classes.”

Chair Levitt interjected, “Bruce, I think this would be a good issue to bring up at the next meeting when we talk about online education; that’s not so much a technology issue.”

Chair Levitt had a question. “When we work at Google’s platform for email, for example, is it part of Google’s overall email database where they see our email and target ads to us, or is it something separate from that?”
Matthew Ricks answered, “The solution that we’ve struck at this point is ad-free. So there will not be ads. And they do not do data mining in the Google apps for education space. That’s the difference between the consumer offering and edu offering, which is why we’re going to get people in the edu offering.”

Chair Levitt replied, “Thanks for clarification. Do you have any idea when faculty will actually be switched over to Google mail at this point?

Matthew Ricks replied, “We need to wait until Google enters the BAA, which they say is sometime in 2013, but we can entertain taking schools or units sooner than that, but not the Medical Center.”

Professor Goldsmith noted, “A quick comment on the wireless, which I know a little bit about. Ubiquitous coverage is not an easy problem to solve, so if you want to go down that path, it would be good to look systematically at the university’s approach to wireless coverage; there are also changes going on in cellular networks right now within the LTE (Long Term Evolution) standard, which is the first cellular system to follow the Internet Protocol (IP), as does WiFi. There are also many changes in wireless technology going on right now, and you might want to wait another year to see what technology is available, which could be very different and much more compelling in terms of doing cellular and WiFi together in one box.”

Professor Zebker replied, “I think you’re making my point, which is that some university-wide committee, like C-ACIS, needs to think about this as a whole. We need to engage ITSS, so it’s thought about as a whole, so it’s not just things like, ‘Your phone only works in a building where students were motivated enough to run a wire up to the roof and a repeater downstairs.’”

Chair Levitt invited the new Chair of C-ACIS, Vijay Pande, to say a few words about this year’s agenda.

Professor Pande commented, “There are three primary issues we’re going to talk about, I think. We just heard about two of them; one is support for online education, both in terms of Stanford and also of Stanford to the outside. The second one is infrastructure issues, especially switching over to cloud services, and general infrastructure issues like wireless. There is a third issue that is somewhat new, which is that Stanford is building the Stanford Research Computing Facility (SCRF). There is an important philosophical issue, which is about how much research computing has become sufficiently mainstream that it can be done more top-down, rather than bottom up.

“Right now we have many researchers with their own server rooms in closets. I used to be one of them and it’s extremely inefficient and problematic. Just as we don’t want every researcher to set up his or her own phone system or internet system, computing in many ways is becoming like that, with obvious exceptions. The upshot is that we could be more efficient, that’s one thing, but the exciting thing for me is we
could be more transformative. Computing could have impact in the areas that it doesn’t have now. Think about data mining in English or French Literature or something like that. All these things that could happen but wouldn’t happen, unless we provide the infrastructure for it. That would be a major part of this year’s agenda.”

Vice Provost and Dean for Research Ann Arvin commented, “I want to follow up on what Vijay has said because we have an exciting new facility being built as we speak; it’s going to be done very quickly, so we need to do the thinking about how to use it most efficiently for research computing. Vijay has kindly agreed, along with Todd Martinez, to be co-chairs of a faculty committee, and there will be a very intensive outreach to faculty on these issues very soon.”

There were no more questions. Chair Levitt said, “Thanks to Howard, thanks to Matthew, and thanks to Vijay.”

[Applause]

VI. Unfinished Business
There was no unfinished business.

VII. New Business
There was no new business.

VIII. Adjournment
A motion to adjourn was seconded and passed unanimously. The Senate adjourned the meeting at 5:00 PM.

Respectfully submitted,

Rex L. Jamison, MD
Academic Secretary to the University
Professor of Medicine, Emeritus
**October 11, 2012**
**Meeting of Senate XLV**
**RECORD OF ATTENDANCE**

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**Present on Invitation or by Request:**
Stephen Shirreffs, Laura Remillard, Ron Howard, Jane Dunn, David Luenberger, Matthew Ricks, Vijay Pande, Howard Zebker, Phil Reese, Mark Miyasaki, Ketaki Shiriram, Miles Seiver, Brad Osgood, Gavin Jones, Stewart Levin, Shari Palmer, Lisa Lapin, Brad Hayward, Mike Antonucci

**Present on Standing Invitation:**
Tom Black, Stephanie Kalfayan, Ruth McKay, Alexander Fetter, Kathleen Sullivan, Robbie Zimbroff, Michael Shaw

**Outside Press:**