

## Faculty Board Meeting

October 15, 2007

**MINUTES**

The Faculty Board meeting was held on Monday, October 15, 2007, in the Millikan Board Room, California Institute of Technology, California 91125.

**Board Members Present**

Judy Campbell, **Chair\***  
 Richard Murray, **Vice Chair\***  
 Michael Brown  
 Jean-Lou Chameau\*  
 Mani Chandy  
 John Dabiri  
 Kenneth Farley\*  
 Sossina Haile  
 John Hall\*  
 Jonathan Katz\*  
 Joseph Kirschvink  
 Jenijoy La Belle  
 Nathan Lewis

**Invited Guests**

Kevin Austin  
 Dean Currie  
 Scott Fraser  
 Melany Hunt ♦  
 Ricky Jones  
 Robert O'Rourke  
 Catherine Ward  
 Cindy Weinstein  
 Harry Yohalem

Kenneth Libbrecht  
 Elliot Meyerowitz\*  
 David Politzer  
 David Rutledge\*  
 Angelike Stathopoulos  
 Charles Steidel  
 Paul Sternberg  
 Joann Stock  
 Edward Stolper\*  
 Brian Stoltz  
 David Tirrell\*  
 Thomas Tombrello\*

\*(ex officio)

**Student Representatives**

Ronald Bryan, Chair, GSC  
 Merielle Spain, Vice Chair, GSC  
  
 Chris Gonzales, President, ASCIT  
 Mike Grinolds, Vice President, ASCIT

♦ **Presenter****Board Members Absent**

Fiona Cowie, **Secretary\***  
 Richard Andersen  
 Kim Border  
 Michael Hoffmann\*  
 G. Ravichandran  
 John Seinfeld

**Recorder**

David Wales  
 Fiona L. Tindall

**1. Call to Order**

Chair Campbell called the meeting to order at 3:05 pm.

**2. Approval of Minutes**

Motion was made and seconded to approve the June 4, 2007 Faculty Board minutes. Motion carried.

### 3. Announcements

**Chair Campbell** announced that Secretary Cowie could not attend today's meeting, and that David Wales, Former Secretary, had agreed to help out. She welcomed the new Faculty Board members:

Michael Brown, GPS  
John Dabiri, EAS  
Angelike Stathopoulos, BIO

Mani Chandy, EAS  
Nathan Lewis, CCE  
Charles Steidel, PMA

She also congratulated the new Provost and welcomed him to the Faculty Board. In response to a question it was confirmed that all Faculty Board members, including ex officio, are voting members.

She also thanked Brian Stoltz for continuing to serve on the Faculty Board, completing the term of Jonas Peters who is away from Caltech this year. She then welcomed Student Representatives:

Ronald Bryan, Chair, GSC  
Merielle Spain, Vice Chair, GSC

Chris Gonzales, President, ASCIT  
Mike Grinolds, Vice President, ASCIT

She welcomed members from the Committee on the Caltech Student Experience and Student Affairs. Members attending were: Kevin Austin; Alex Brown, Graduate Student; Ricky Jones, Undergraduate; Scott Fraser; and Catherine Ward. Joann Stock is also on the committee.

She also congratulated the two new Vice Provosts, Melany Hunt, and Steve Mayo.

**President Chameau** said that many people had attended last Friday's reception for new Faculty. It is a great group coming in. He is very impressed with the new Freshman and Graduates he's met over the past few weeks.

Dr. Chameau said that within the week, it is expected that the St. Luke's property will be sold.

He reported that the endowment suffered some ups and downs during the summer. There was a slight increase, and at the end of June it was significantly better than the previous year (21.2%). We are very close to exceeding \$2 Billion in endowment.

Dr. Chameau said there will be a Board of Trustees Retreat in November, at which a proposed new committee will be voted upon. The new committee will look at key aspects of the undergraduate and graduate Experience. The Trustees are very interested in student activities.

**Dean Hall** reported that Frosh camp was held in Ventura this year. It worked out very nicely and they would like to go there again. The new class has 234 freshmen and eight transfer students. The new class has 37% women. He said it appears to be a very "sociable" class. The highlights at camp included a science talk by John Dabiri. At the talent show a student juggled two balls with one hand, and solved a Rubik's cube with the other! He said that

rotation was over and students would be in their houses shortly. Parent's visiting day is Saturday, November 3<sup>rd</sup>.

**Ricky Jones, Undergrad** announced that the first annual Olive Harvest Festival will take place on Friday, November 2. This is an all-day event with lots of activities, including cooking demonstrations. There is an open invitation for everyone to come. He pointed out that some of the activities may overlap with classes and he requested that Faculty take this into account and support the festival.

Vice Provost Hunt said that this is a fun festival. Students have been working very hard to organize this event for the whole community. She welcomes Faculty participation and encourages them supporting the students.

#### **4. Report – Committee on the Caltech Student Experience and Student Affairs**

Chair Campbell said that today's presentation will be a summary of the Committee on the Caltech Student Experience and Student Affairs, given by the Chair of the Committee, Melany Hunt. After the report, discussion and questions – and perhaps focus the discussion on one or more action.

The full report is available at: [http://oof.caltech.edu/fac\\_board/agendas.html](http://oof.caltech.edu/fac_board/agendas.html).

Dr. Hunt thanked the Faculty Board for giving her the opportunity to discuss the report. She said that this committee was formed last March by Dr's Chameau and Hall. The committee comprises of seven student members, two staff members, and six Faculty members. She summarized the charge to the committee. The charge is to look at the key aspects of the student experience. They were asked to look at Student Affairs, in particular the position of Vice President, as well as student Affairs and its role of supporting students, and the structure of Student Affairs. In terms of Faculty, they were asked to look at how to increase effectiveness of student-faculty interactions. Lastly they were asked to consider what role the Trustees should play in the student experience.

The committee started with data gathering, and spoke with approximately 30 individuals – Student Affairs staff, Faculty members, Division Chairs, Provosts, and students. They also looked at internal reports, exit surveys and external rankings. The charge was quite broad and the committee really tried to keep the focus on academics and teaching, and student support.

Dr. Hunt reminded the Faculty Board that there are other ongoing committees that overlap with her committee's charge. In about a year from now, we are going to have an accreditation review by the Western Association of Schools and Colleges (WASC). There are three subcommittees to WASC which were formed several years ago (strictly for undergraduates):

- Honor Code Committee*
- Research Committee*
- Education Committee*

Part of what we need to do for the WASC accreditation process is to have some open discussions. Dr. Hunt said that we will be hearing more from these sub committees, and from

her about the accreditation process. She hopes that over the next year, they will be able to make more concrete recommendations in regards to those areas.

Dr. Hunt said there is also a committee to review undergraduate admissions (chaired by Geoff Blake and Rick Bischoff) which was formed about the same time as her committee. Her committee did not do anything in terms of admissions, honor code, though in the report they do talk about research and education, but with the hope that these other committees will continue the process. The committee decided it was not capable of looking at things in terms of budgets – so they left these things for others. Dr. Hunt said that in this presentation she will give an overview of the committee's recommendations, plus the core curriculum.

Looking at external data – the kinds of things you hear about Caltech:

- 2008 Kaplan and Newsweek
- one of 25 "Hottest Schools in America"
- "Hottest school for Science and Engineering"

For a number of years, Kiplinger's have said that we are the "Best Value." High school students and parents look mostly at the U.S. News and World Reports.

- 2008 U.S. News and World Reports
- Rank 5<sup>th</sup> tied with UPenn; behind, Princeton, Harvard, Yale and Stanford (4<sup>th</sup> last year)
- 3-to-1 student-to faculty ratio
- highest SAT scores
- highest expenditures per student
- 2<sup>nd</sup> Faculty resources

Caltech is ranked twentieth in retention and graduation rate. This past year, if you look at our Bachelor students, we graduated (4-year) 73%. Our six year rate is 89%, which is comparable to UC Berkeley, UCLA – it is behind our peer institutions. We are ranked 28<sup>th</sup> in alumni giving (29% annual giving rate) which might be considered an indirect negative measure of student satisfaction.

The Princeton Review (2007) says that we are number one "Students never stop studying." We are ranked 359<sup>th</sup> out of 361 schools surveyed in "Professor get high marks."

Dr. Hunt projected a chart showing 2006 exit surveys for MIT and Caltech. Caltech B.S. graduates were asked if they would recommend Caltech to a high school student with a background similar to their own. Fewer than a quarter of the students responded that they would "definitely recommend" Caltech; just over half of our students would "definitely" or "probably" recommend Caltech. When students at MIT were asked the same question, 54% of their new graduates responded that they would "definitely recommend" MIT; almost 80% of their graduates would recommend MIT. A further comparison with MIT involved a series of questions regarding satisfaction levels with academic issues. Students from Caltech and MIT value the opportunities for research with faculty members, the class sizes and the availability of faculty. However, students at Caltech are noticeably less satisfied with the quality of teaching. At both Caltech and MIT, students are the least satisfied with the quality of advising either before or after declaring a major. The Committee also noted that the percentage of students who accept Caltech's offer of admission was 36% in 2006 and 39% in 2007; MIT had a yield of 67% in 2006 and 69% in 2007.

In terms of the student experience: the Caltech undergraduate education is centered on the core curriculum and intense academics; research; house system; honor code. The Graduate student experience is centered on research apprenticeship and preparation for life beyond Caltech.

Dr. Hunt said that her committee's recommendations are to improve overall student experience at both the graduate and undergraduate level. In terms of the undergraduates, moving from a "never stop studying" mode to a "never stop learning" mode.

Dr. Hunt projected the committee's ten recommendations:

1. Caltech should publically reaffirm its commitment to excellence in education.
  - Expectation that all faculty participate in educating undergrads and grads and that excellence in education is part of the Caltech reward system
2. The Provost is the Chief Academic Officer of the Institute and should ensure the quality of teaching, mentoring and advising.
  - Oversight of the undergraduate academic program
  - Option level discussions; best practices
  - Resources for educational innovation
  - Assessment of academic programs
3. Review of the Core Curriculum
4. The "Caltech Syndrome": Easing the pressure
  - Recommendations on workload, feedback, getting students back in the classroom, tutoring program,...
5. Monitoring retention and graduation rates
  - Why do students leave without a degree?
  - Data for both undergrad and grad levels
  - Policies on overloads, leaves of absence, extensions...

In response to a question, Dr. Hunt said data on students who transferred successfully to other institutions was not taken into account.

6. Faculty positions within Student Affairs
  - Faculty member as Vice President of Student Affairs
  - Deans and MOSH -- attractive to faculty
7. Role of the Office of Graduate Studies
  - Currently, graduate admissions, stipends, payroll,...
  - Office should provide support for individual students, tracking student progress, grad student issues, ...
  - Agreement on the mission of the Office

8. Undergraduate Residential Life Program

- Move Res Life from Housing to Dean's Office
- Hire an assistant/associate Dean of Residential Life
- Centralize academic and student life programs
- Balance between self governance and Institute responsibilities for ensuring health and safety

9. Diversity

- Reconsider the mission of Administrative Committee on Diversity and Minority Affairs (ACODAMA)
- Review of the offices handling diversity activities. Are they effective?

10. Interactions with the Trustees

- Encourage the establishment of a Trustee committee on the Student Experience
- Include student Advisory Members
- Assessment of academic programs
- Enable interactions with students

Dr. Hunt projected a slide showing an excerpt from the Report on the Core Curriculum, 1986 (Chan Report):

“Caltech takes considerable pride in graduating biologists who understand the laws of quantum physics and can apply them to their molecular biology, neurobiology or biophysics; surface and materials scientists who can design new processes and materials based on modern chemical principles and physical concepts; and electrical engineers and computer scientists who can invent new logic circuits, or develop computer software founded on modern mathematics.”

Questions:

- Is Core Curriculum successful in its mission of training students in the fundamentals?
- Is the content and breadth appropriate for the next decade?
- Do students retain this knowledge and learn to apply these fundamentals to interdisciplinary problems?
- How can we best leverage Caltech's small size and focus on research?

Recommendations:

- Establish an Ad Hoc Committee to consider these questions; include faculty who have not been previously involved with the Core
- Articulate purpose, goals and outcomes
- Flexibility so that academic year research is possible
- Increase interactions between faculty and students, especially in the first year
- Levels of high school preparation
- Pass-fail grading

Chair Campbell thanked Dr. Hunt for the report, and congratulated the committee for completing it so quickly. The report has created quite an agenda here, not just for Faculty, but for administration.

Dr. Tombrello said he was curious to know if students actually graduate with fewer units now than they did in 1961. Dr. Hunt said she didn't know. Dr. Tombrello said it would be useful to have that number.

Dr. Lewis said that he was struck by the telling statistic that fewer than half of Caltech's undergraduate alumni would recommend to their peers that they should come to Caltech. That, to him, is a stunning number. Having served on the Chan committee in 1986, and on the Core Curriculum Committee, and he knew how long it took them to add one biology course and one Menu course. They removed one quarter of physics and a quarter of math. He strongly suggests that we try to do a bold experiment. He believes that minor perturbations are not soon going to change that issue.

His suggestion would be to establish a whole new program at Caltech in which students would be taught in a radically different way. He did not give details but suggested it as a new way of looking at the issue. Students could apply into it, or volunteer for it. It would be more like an integrated science Oxford reading model. We should seriously think about a bold change on a subset of our students and see what the results are. With a three to one ratio, we could have a different model for how we teach students.

Dr. Katz said that MIT had experimental tracts that did science in a more integrated manner. Students at MIT did well in the program. He thinks they were self-selected.

Dr. Weinstein wondered about the graduation rates at Princeton and Stanford. Dr. Hunt said that the 6-year graduation rate for Harvard is 98%, and MIT is 94%.

It was asked what was meant by an ad hoc committee. Dr. Hunt said that we currently have the Core Curriculum Steering Committee (CCSC) and her committee would like to see a separate committee appointed that isn't the CCSC. Preferably, such a committee would be formed through the Faculty Board and would consist of some Faculty who haven't participated in the core, to bring new ideas and concepts.

Chair Campbell pointed out that the CCSC is also very busy dealing with implementing what we currently have. She reported that Dr. Filippone, Chair of the CCSC, agreed that their committee was not an appropriate committee to do this.

It was moved that the Faculty Board establishes an ad hoc committee to look at the core curriculum broadly and report back in a reasonable length of time.

Chair Campbell said that the bylaws state that the Faculty's job is to establish the curriculum. She feels that this recommendation is the Faculty's responsibility.

Dr. Lewis proposed an amendment to the motion. The amendment would be that they look broadly at completely different methods of how we integrate the course material we are now teaching. Additionally, the committee reviews the methods we use to teach the core.

Chair Campbell said that there would be consultation on who would be on the ad hoc committee, and what its charge would be.

The new amendment to the motion was met with favor.

It was mentioned that many universities have a freshman seminar program in which many Faculty meet in small groups with students. Catherine Ward, Graduate, said that freshman seminar programs are a good idea. It is a chance for students to explore options and not be graded. She would like to see increased faculty/student interaction.

It was mentioned that the size of Caltech is very small compared to our peer institutions. This means that options cannot be as broad, and scheduling many possibilities is difficult.

Chair Campbell asked if we were ready to vote on establishing an ad hoc committee to review the core curriculum, and to look broadly at it in completely different ways of teaching what we already do.

Dr. Chameau said that we have to look at the big picture not just every piece of data as numbers can be misleading. In addition, he has spoken to faculty, students and alumni and gets a similar picture to what the numbers indicate. He is supportive of faculty desire to take a hard look at what it all means. Caltech is a unique institution and he expects the picture to look better.

Chair Campbell stated the motion again.

Motion was made that the Faculty Board establishes an ad hoc committee to look at the core curriculum broadly, and report back in a reasonable length of time. The Motion was seconded and carried.

Chair Campbell said she would establish an ad hoc committee and do so in consultation with everyone.

There was more discussion about what the charge should be and whether it should be approved by the Faculty Board. Chair Campbell said one option would be a discussion at the full Faculty meeting in November.

Chair Campbell said that there was a wide range of recommendations from the committee and some of these will be the subject of future meetings.

Dr. Stolper said that he is reviewing the many recommendations through the Provosts' office and is starting to act upon them.

## **5. New Business**

There was no new business.

## **6. The meeting adjourned at 4:20 pm.**

These minutes were approved at the November 12, 2007, Faculty Board Meeting.