

Chemical Engineering

Student-Faculty Conference

April 6, 2009





Committee Members

- **Muzhou Wang**
chair of committee, senior, materials track
- **Jack Lin**
senior, environmental track
- **Beijing Kara Huang**
senior, biomolecular track
- **Ankita Mishra**
junior, biomolecular track, AIChE president
- **Karthik Narsimhan**
sophomore, biomolecular track
- **Qinren Zhen**
sophomore, materials track
- **Richard Flagan**
Irma and Ross McCollum-William H. Corcoran Professor; Executive Officer
- **Julie Kornfield**
Professor
- **Anand Asthagiri**
Assistant Professor
- **Michael Vicic**
Lecturer

















Topics of Discussion

- Brief review of SFC '07
- Current Issues
 - Senior thesis
 - Ch21a
 - Restructuring tracks
 - Miscellaneous course issues
 - Industry opportunities
- Open for general discussion



Recommendations from Previous SFC

Recommendation	Status
Update course catalog	 
Switch ChE63ab/64, expand Ch3b, improve ChE91	 
Improve student-faculty interactions	 
Hire more undergrad TAs, find stable funding source	 
Improve physical chemistry curriculum (Ch21)	 
Appoint career advisor for growing industry interest	 





Senior Thesis

- Issue: Senior thesis students are unclear about what is expected and how they will be evaluated.

- Recommendations:
 - Require regular meetings and progress reports with mentor
 - Require documentation of prior expectations before project begins





Ch21a

□ Issue: Negative feedback received

- Unclear lectures, poor handwriting, irrelevant homeworks
- Survey response: “The professor may have been trying to do a good job, but I couldn't follow what he was saying at all.”
- Little progress made since last SFC

□ Recommendations:

- Rotate new instructor – action at faculty level
- Online lecture notes, powerpoint lectures?





Materials Track

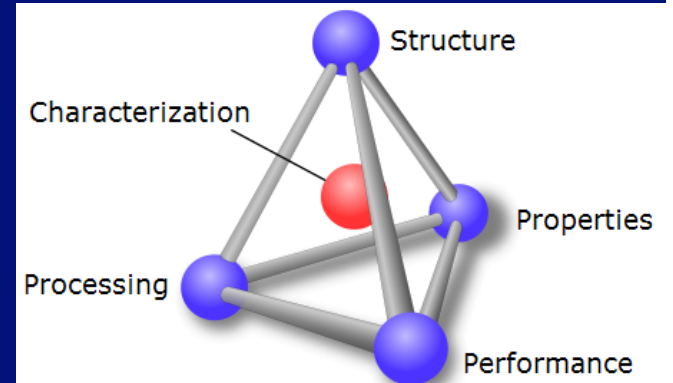
- Issue: Students have a hard time seeing the overall picture, felt the classes are disjointed and unrelated

- Recommendations:
 - Suggested course schedules
 - Committee publication on aims and goals of materials track
 - Group advising by professors



Sample Course Schedule

- MS115a- general overview
- MS115b- properties, processing, performance of different materials
- MS131- crystal structures
- MS132- TEM characterization
- MS133- transport, diffusion of materials
- Two other electives





Bio-molecular Track

- Issue: Students dissatisfied with the bioengineering course offerings, there is not enough of a bio-molecular emphasis

- Recommendation: Amend requirements
 - Eliminate BE152, BE153
 - Offer classes in metabolic engineering
 - 7 out of all 11 BM seniors requested system biology course



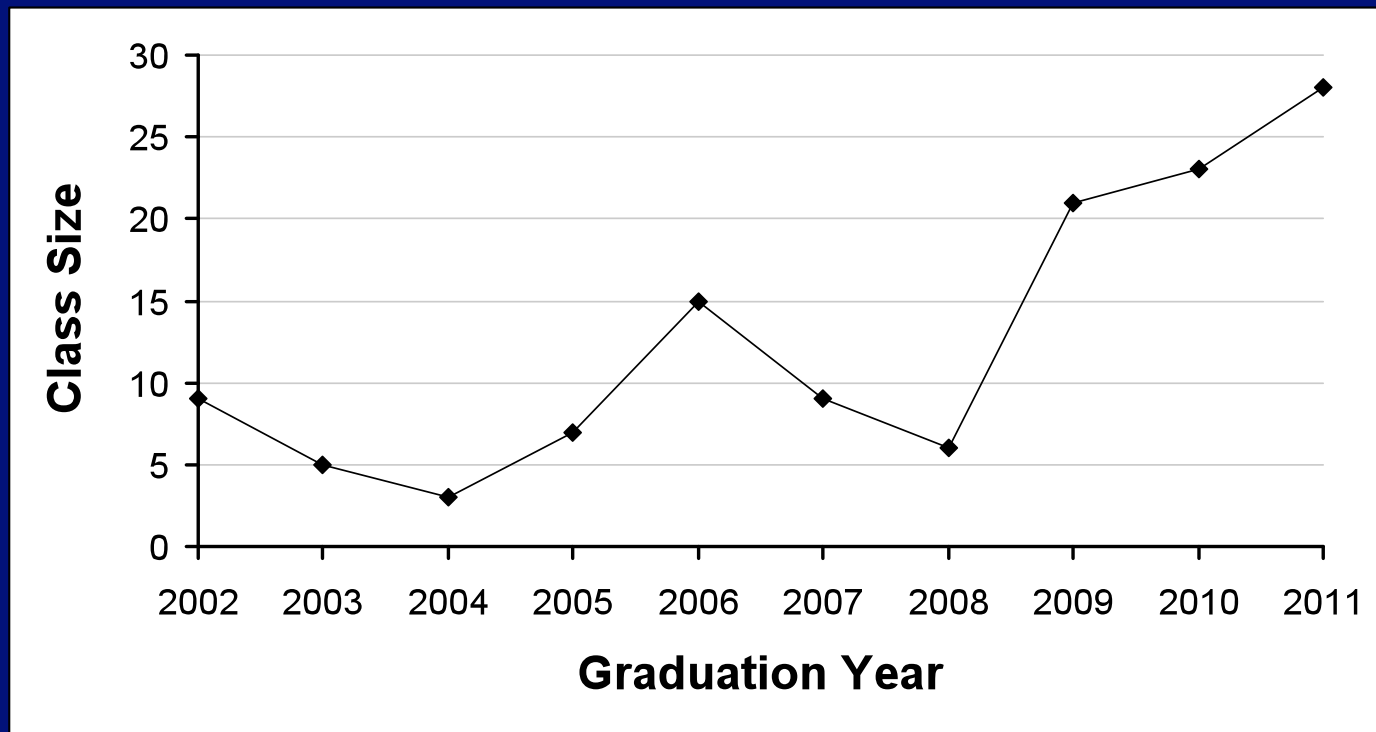


Miscellaneous Course Issues

- ❑ ACM95: recommended for sophomores
- ❑ ChE63/64: students are split over which should come first
- ❑ ChE103: workload is too high
- ❑ ChE110: incorporate this class into all tracks
- ❑ Allow 3 science/engineering electives to be taken pass/fail



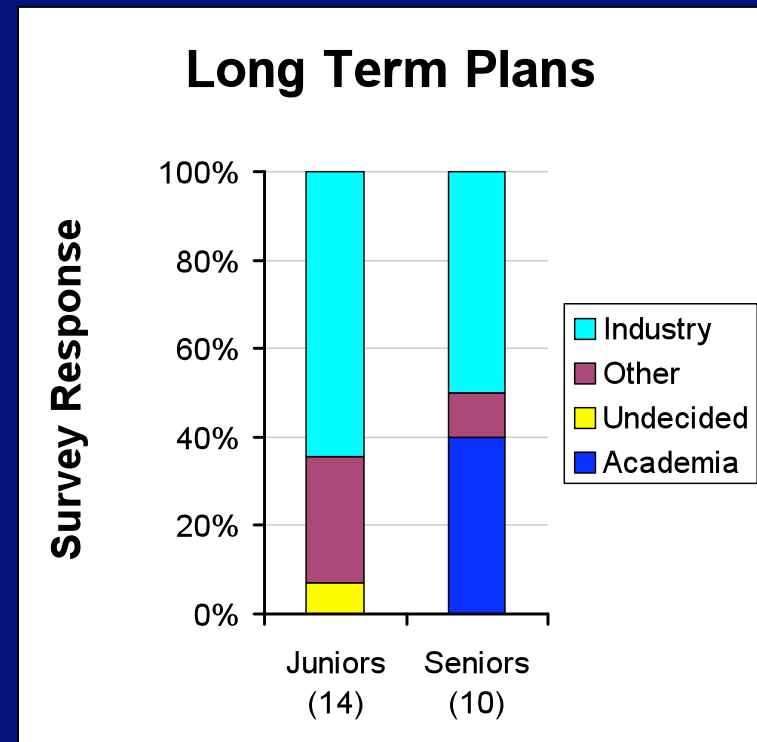
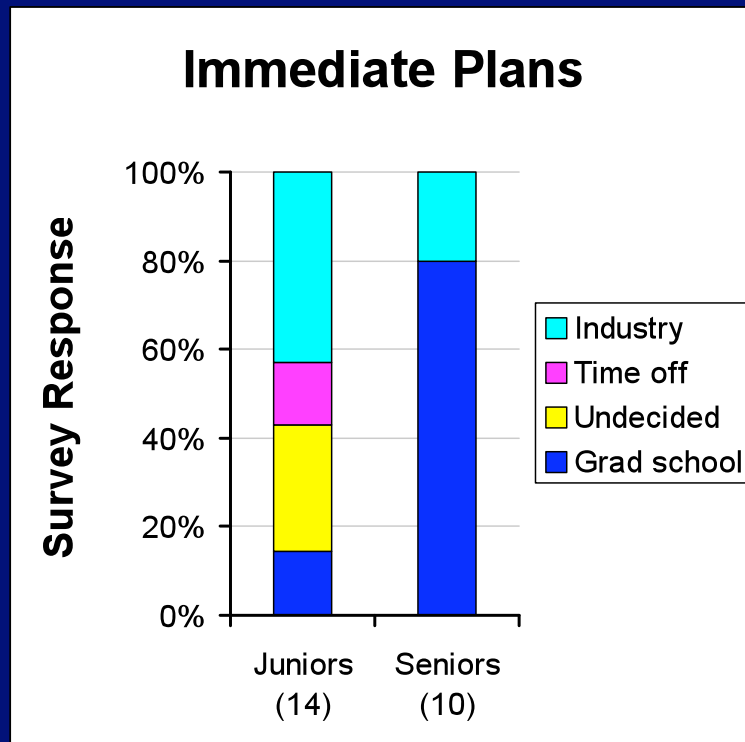
Our Class Sizes



□ ChemE class size is growing...



Future Plans of Students



□ ChemE graduates are venturing into the career world





Industry Careers

- **Issue:** Department does not prepare undergraduates for industry careers.
 - For statement “The ChE department provides adequate connections for internships,” 60% disagree and 10% agree
 - Survey response: “Caltech specifically prepares students for grad school and essentially completely disregards the possibility that students will go into industry.”





Status of Recruitment

Companies that
recruit at Caltech



Companies that
we want:





Industry Careers

- **Recommendations:** A more proactive approach to getting careers for students
 - Designate point person for arranging contacts with companies, managing internships, etc.
 - Leverage connections with Alumni Association
 - Use faculty connections with industry
 - Establish contacts at USC and UCLA departments for recruiting and career fairs





Let's Discuss!

- Senior thesis
- Ch21a
- Restructuring tracks
- Miscellaneous course issues
- Industry opportunities

