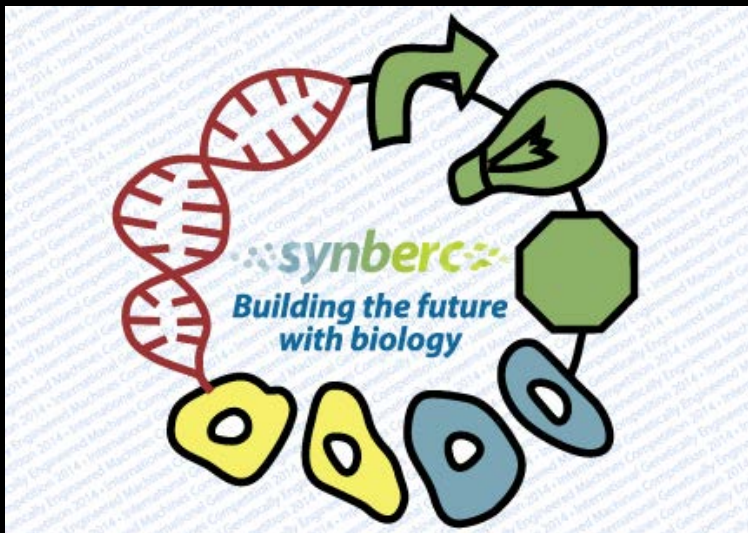




- Undergrad opportunities:
  - Research Experience for Undergrads
  - Synthetic Biology Certificate
  - Synberc Scholars Program... and more!
  - Send in your postcard to be featured by Synberc's iGEM website. First five receive a prize!



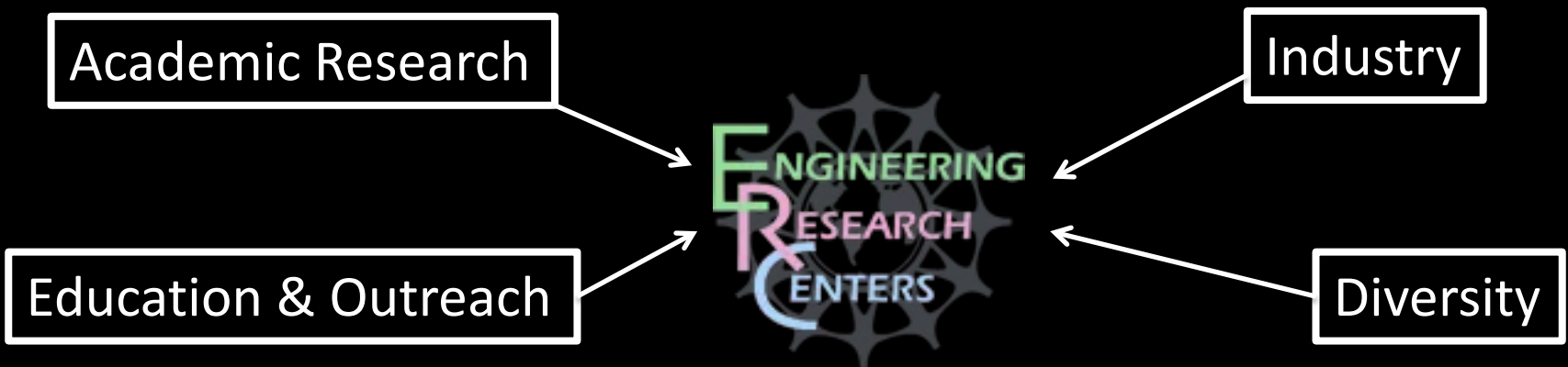
Visit us at table 13 in Exhibit Hall C!

[synberc.org/igem-paving-registration](http://synberc.org/igem-paving-registration)



# Engineering Research Centers (ERCs)

- Helping to solve problems and design products to benefit society and the community
- Driving force of innovation
- Lots of opportunities for undergraduates and graduate students





# Engineering Research Centers (ERCs)

## Manufacturing:



## Biotech & Health:



## Energy/Infrastructure:



## Microelectronics & IT:



# Paving the way to graduate school

Meltem Erol

Director, Graduate Outreach

College of Engineering

University of California, Berkeley

Shaila Kotadia

Education and Outreach Manager

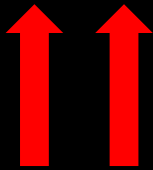
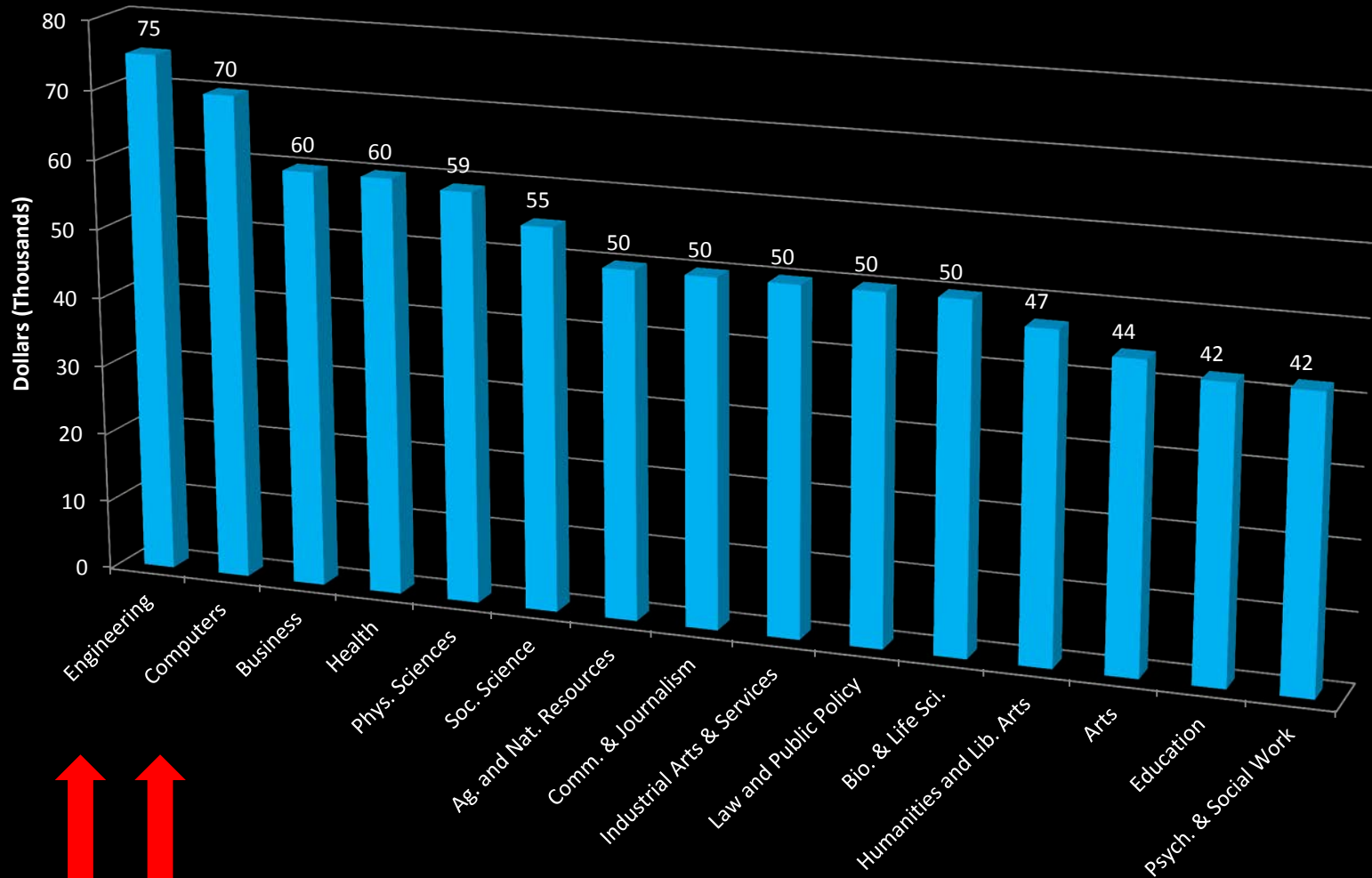
Synthetic Biology Engineering Research Center (Synberc)

University of California, Berkeley

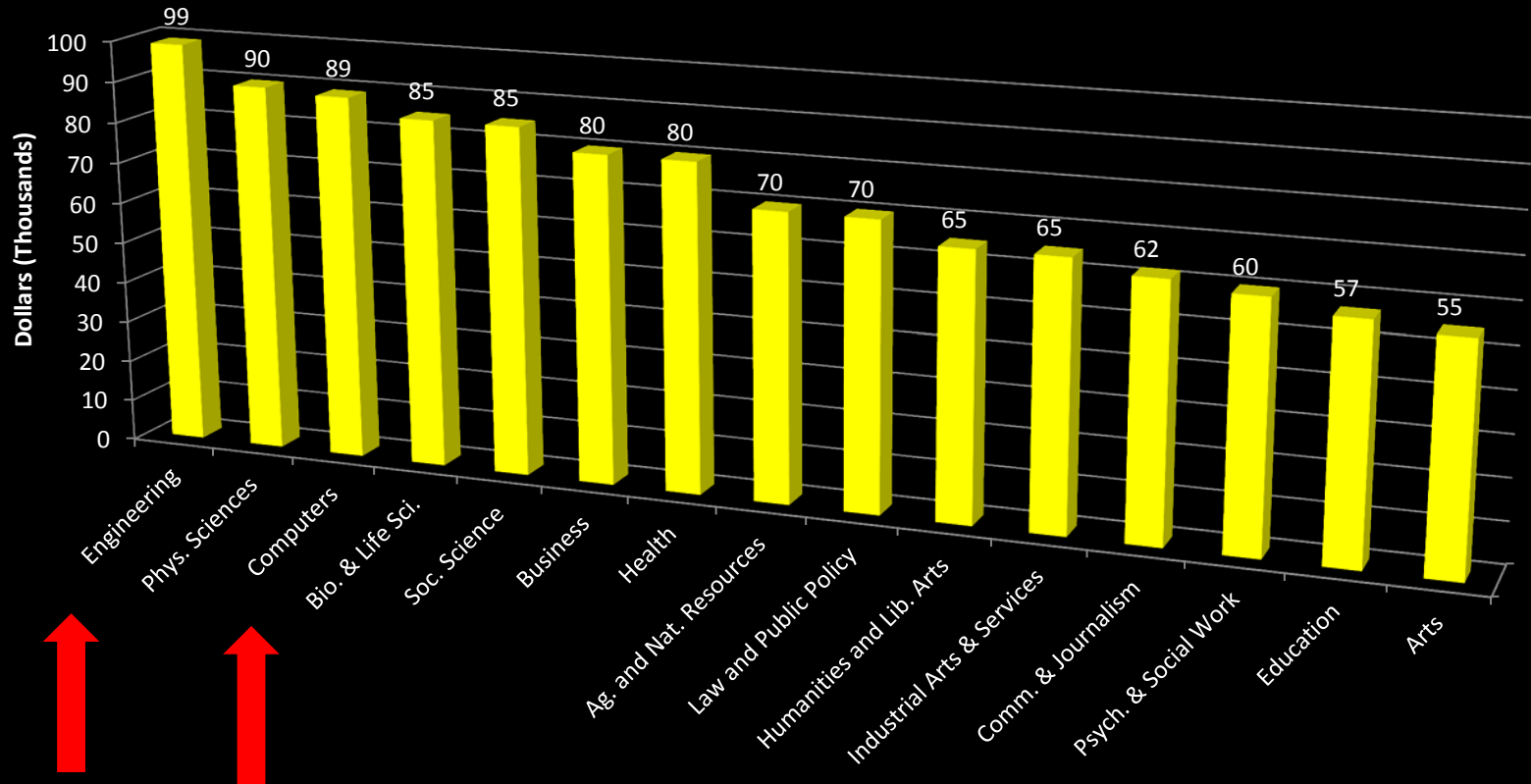
# Why Graduate School?

- STEM jobs grew at 3x rate of non-STEM jobs in last 10 years and expected to continue to grow at higher-than-average rate over next 10 years (Business Journals as reported in ASEE “First Bell”, July 26, 2011)
- STEM workers earned 26% more than non-STEM workers (Business Journals as reported in ASEE “First Bell”, July 26, 2011)
- Number of college graduates in US doubled in last 20 years but number of engineering graduates has remained flat (Paul Otellini, President/CEO Intel, member President’s Council on Jobs & Competitiveness, speaking at Stay With It! Campaign March 2012)
- “1 million+ jobs in science & technology will open up in America this year, but only 200,000 new graduates will have the skills to fill them” (CEO of Dow Chemical in The Economist, July 2011)

# Median Earnings with Bachelor's Degree



# Median Earnings with Graduate Degree



# Fact or Fiction?

I want to eventually get a PhD but I've heard you have to get a masters degree first.

**FALSE!!**



# Fact or Fiction?

Significant research experience will make up for my low GPA.

Mostly False

# How does it work?

- GPA
- GRE
- Letters of Recommendation
- Experience
- Statement of Purpose
- Needs of the Department (PhD)

# GPA

- READ the instructions!
- Upper division technical/major
- Higher is better
- Looking for trends
- Explain low GPA's
- P/NP vs grade
- Graduate Courses

# GRE

- Impact not clear, **but they matter**
- 90<sup>th</sup> percentile in math: Raw score approx. 165
- Verbal is becoming increasingly relevant
- Allow 2 months to prepare
- Aim to take test Aug of Senior Year

# Letters of Recommendation

- Should verify your readiness for graduate school
- A negative or even lukewarm letter can keep you out, despite your other qualifications
- Should always be from faculty (for PhD)
- At least 1 faculty letter from home institution
- No letters from graduate students, post docs or lecturers

Select recommenders carefully!!!

# Example

*I don't know anything about the XXX program nor do I really know the applicant very well other than being assigned by the Scholarship University as a casual mentor. However I think she will do not disappoint- she is after all a XXX Scholar, which must count for a lot, and has indicated to me in a letter that she really wants to do summer research. I don't know what else I can write about her but I understand that she has good academic standing.*

# Research Experience

- Absolutely required for PhD; unlikely to be admitted without some kind of research experience (PhD)
- Summer REU's at major research institutions or National Labs
- Career Fairs for internships
- Research at your home undergraduate institution or nearby institution
- iGEM!

# Statement of Purpose

- Read the instructions carefully and answer their question(s)
- Why do you want to go graduate school?
- Why should they select you?
- “Showcase” don’t “showoff”
- Why are you applying to that particular department at that particular school?
- A poorly written statement can keep you out



# A few other points...

- Extracurricular activities (i.e. clubs, organizations, etc)
- Publications
- Financial Resources

# Funding

## PhD:

- Internal Fellowships: Dept, Lab, University
- External: NSF, Hertz, GEM, NDSEG, NIH
- Funding Scenarios

## Masters:

- External: NSF (for research based Masters only)

# The Review Process

## Departmental Needs:

- Limited number of admissions slots
- Department divided into areas, admission based on areas
- Admissions committee is comprised primarily of faculty

## Admissions Committee Goal:

- Maintain Highest Standards of Scholarship
- Admit applicants who will succeed in graduate school
- Meet research needs of faculty and departments
- Recruit for potential added value (fellowships)

# Department Specific Criteria...

## Bioengineering

Visit Day – For top candidates, generally in Feb or early March; not yet admitted; treat it like a 2 day interview

## MCB

Required interview, not guaranteed admission if receive an interview

# Timeline for Seniors

- Aug-Oct take GRE
- Oct ask for recommendations
- Oct/Nov submit fellowship applications
- Dec submit graduate school applications
- Jan-Mar graduate school decisions
- March NSF fellowship decisions
- April 15 submit decisions to graduate school
- May Finish senior year strong
- June CELEBRATE!

# 2014-15 Deadlines

Triple check application deadlines for programs at each school:

## Bioengineering

- UCB Bioengineering Dec. 15
- Stanford Bioengineering Dec. 2
- MIT Bioengineering Dec. 15

## Molecular & Cell Biology

- UCB MCB Dec. 1
- Stanford Biosciences Dec. 2
- MIT Biology Dec. 1

NSF: Engineering/Computer Science: Oct. 29, 2014; 8pm, EST

NDSEG: Dec. 12, 2014; 5pm, EST

Hertz: Oct. 31, 2014; 11:59pm, PST

QUESTIONS?