CornellEngineering Update

Lance R. Collins
Dean of Engineering

March 12-13, 2015

Agenda

- General updates
  - New Faculty, Searches and Awards
  - Research and Graduate Studies Highlights
  - DPE Highlights
  - Project Team Highlights
  - Co-op and Career Services Highlights
- Cornell Now Campaign Update
- Facilities Update
- Brand: Phase Two Update
- Cornell Tech Update

New Faculty

(Arrivals Spring - Summer 2015)

Christian Danescu-Niclescu-Mizil
Asst. Professor, CS

Qing Zhao
Professor, ECE

Debdeep Jena
Professor, ECE/MSE

Grace Xing
Professor, ECE/MSE

Jamol Pender
Asst. Professor, ORIE

Nicole Benedek
Asst. Professor, MSE

Silvia Ferrari
Professor, MAE

John Albertson
Professor, CEE

Cornell Tech Faculty

Thomas Ristenpart
Assoc. Professor
CS/Cornell Tech

COE Searches 2014-2015

Department	Searches	Status
AEP	2	2 asst. professor offers pending; senior search on-going
BEE	?	
BME	1	Langer Chair search
BME/CBE/ AEP/MAE	1	Clare Boothe Luce Professorship
CBE	1	Zak Chair search
CEE	3	Interviewing (Transportation, Env. Processes, Civil Infrastructure)
CS	6	Dean search; up to 5 additional possible
EAS	0	
ECE	3	Interviewing
MAE	3	Interviewing
MAE/ORIE	2	Applied Math searches
MSE	2	Nicole Benedek hired; senior search on-going
ORIE	2	4 offers pending; 1 woman

Cornell Tech Searches 2014-2015

Department	Searches	Status
AEP	0	
BEE	0	
BME	0	
CBE	0	
CEE	0	
CS	1	Interviewing
EAS	0	
ECE	1	Interviewing
MAE	0	
MSE	0	
ORIE	1	Interviewing

National Academy of Engineering

Phil Liu

Class of 1912 Professor in Engineering

School of Civil and

Environmental Engineering

Elected NAE 2015

- Joined Cornell faculty in 1974.
- Cited for his contributions to "coastal engineering research, education, computer modeling, and leadership for tsunami and wave damage."
- Degrees received:
  - B.S., Civil Engineering, National Taiwan University (1968)
  - S.M. (1971) and Sc.D. (1974), Civil Engineering, Massachusetts Institute of Technology

National Academy of Engineering

Michael Todd

Leon C. Welch Professor Emeritus

School of Operations Research and Information Engineering

Elected NAE 2015

- Joined Cornell faculty in 1973.
- Cited for his contributions to "the theory and application of algorithms for continuous optimization."
- Degrees received:
  - B.A., Mathematics, Cambridge University, England, 1968
  - Ph.D., Administrative Sciences, Yale University, 1972

Major Faculty Awards

- **Kavli Frontiers Fellow, National Academy of Sciences**
  - Hakim Weatherspoon (CS)
- **Fellow, American Association for the Advancement of Science**
  - Lance Collins (MAE)
  - Marjolein van der Meulen (BME/MAE)
  - Chris Ober (ORIE)
  - Sara Pryor (EAS)
- **Fellow, Association for Computing Machinery (ACM)**
  - Johannes Gehrke (CS)
  - Thorsten Joachims (CS)
- **NSF Faculty Early Career Development Award**
  - Julius Lucks (CBE)
  - Zhiru Zhang (ECE)

Major Faculty Awards

- **IEEE Fellow**
  - Ken Birman (CS)
- **Fellow, American Physical Society**
  - Fernando Escobedo (CBE)
  - Jane Wang (MAE)
- **Fellow, Association of the Advancement of Artificial Intelligence**
  - Thorsten Joachims (CS)
- **Royal Academy of Engineers, International Fellow**
  - Tom O'Rourke (CEE)
- **Stephen H. Weiss Presidential Fellow**
  - Rajit Manohar (ECE)
- **Air Force's Young Investigator Research Award**
  - Robert Shepherd (MAE)

Cornell Entrepreneur of the Year 2015

Robert Langer

ChE ’70

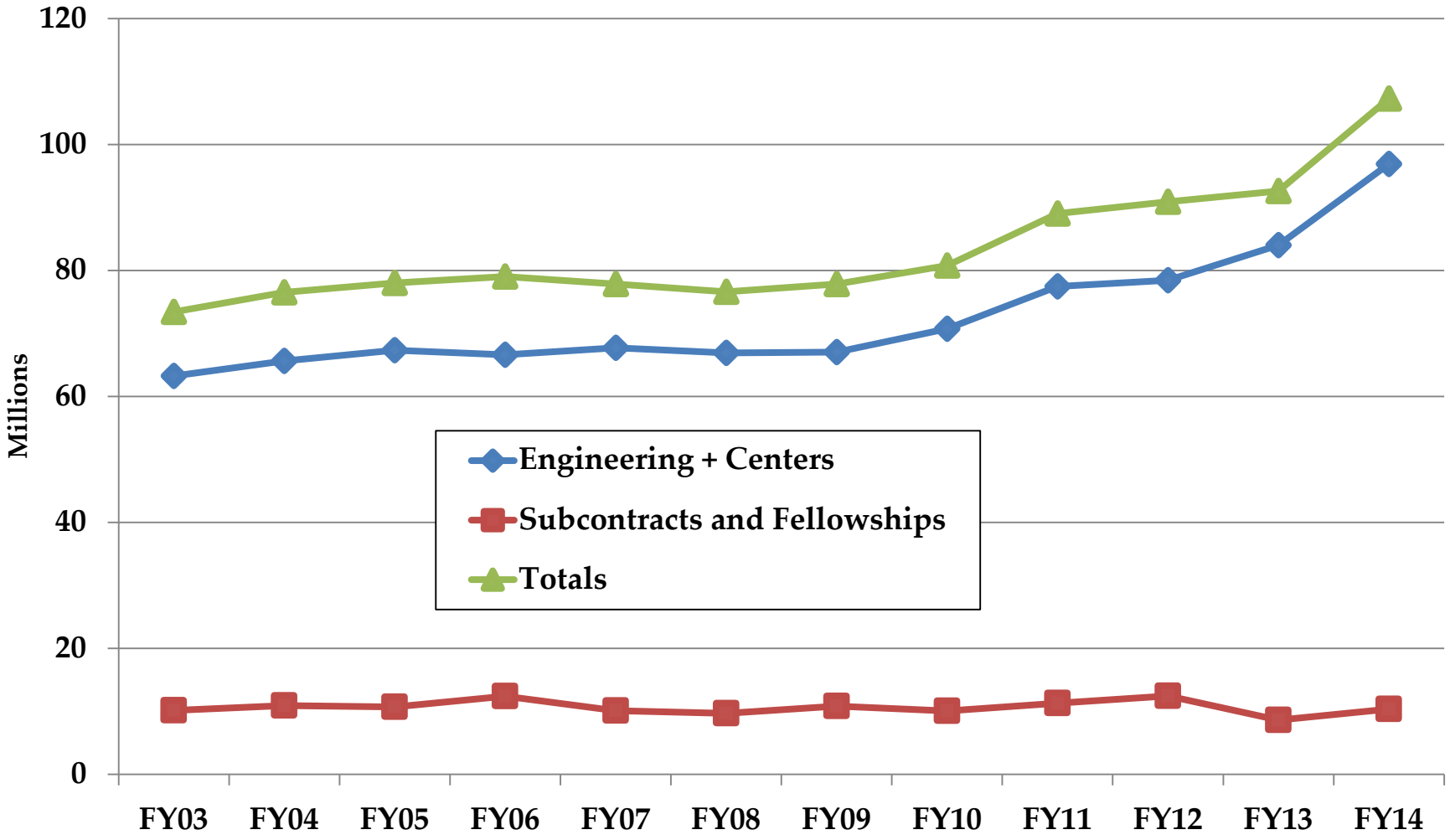
David H. Koch Institute Professor

Massachusetts Institute of Technology

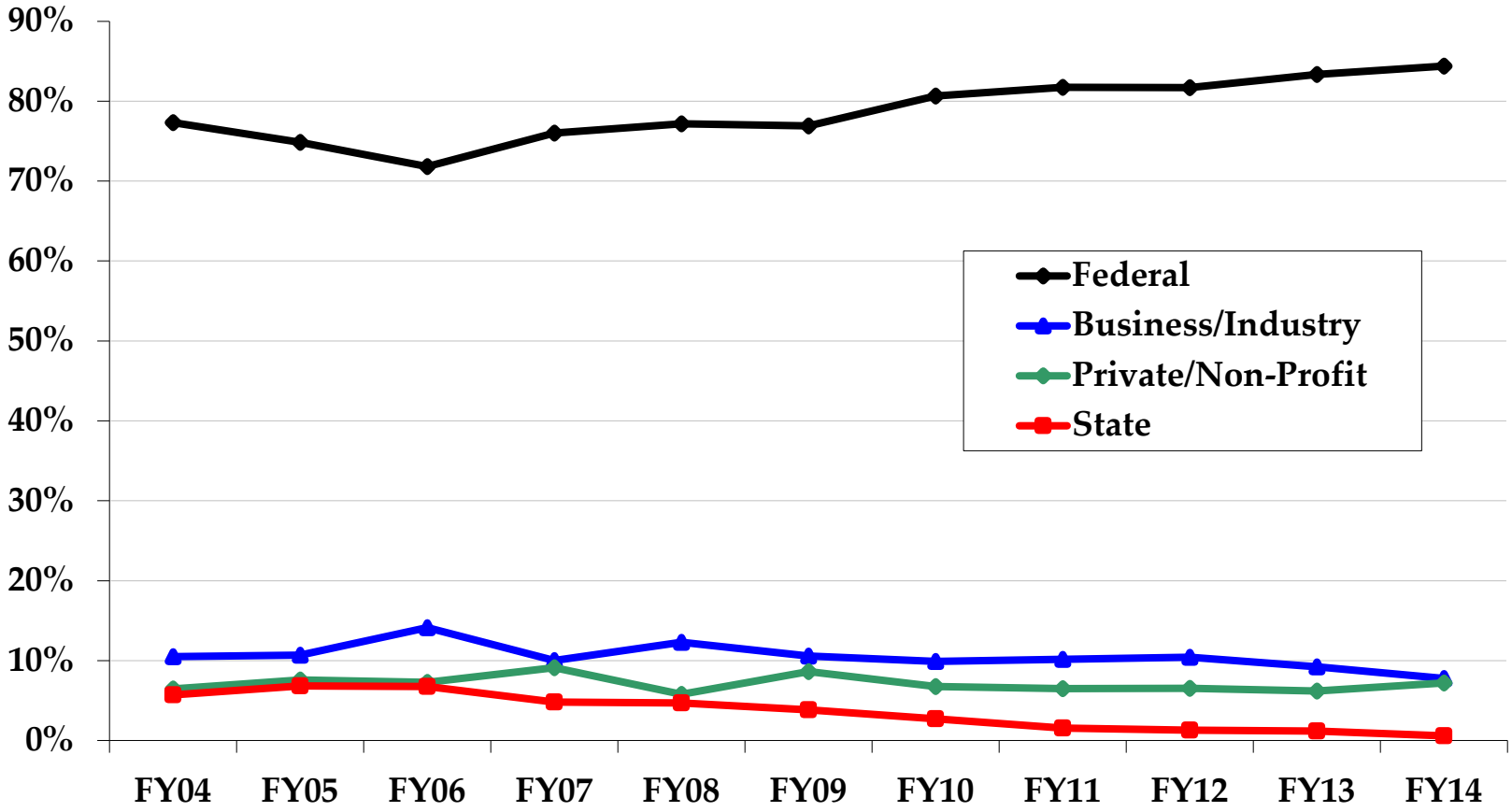
- To be honored in November 2015 during Cornell’s annual Entrepreneurship Summit in New York City.
- Has written more than 1,175 research papers and holds approx. 800 issued and pending patents worldwide, which have been licensed or sublicensed to hundreds of pharmaceutical, chemical, biotechnology and medical device companies.
- Wins Queen Elizabeth Prize for Engineering in recognition of his global impact on human health.
- Most cited-engineer in history.
- Founded more than 25 companies.

Research and Graduate Studies Highlights
March, 2015

Research Expenditures



Percent Distribution of Research Expenditures



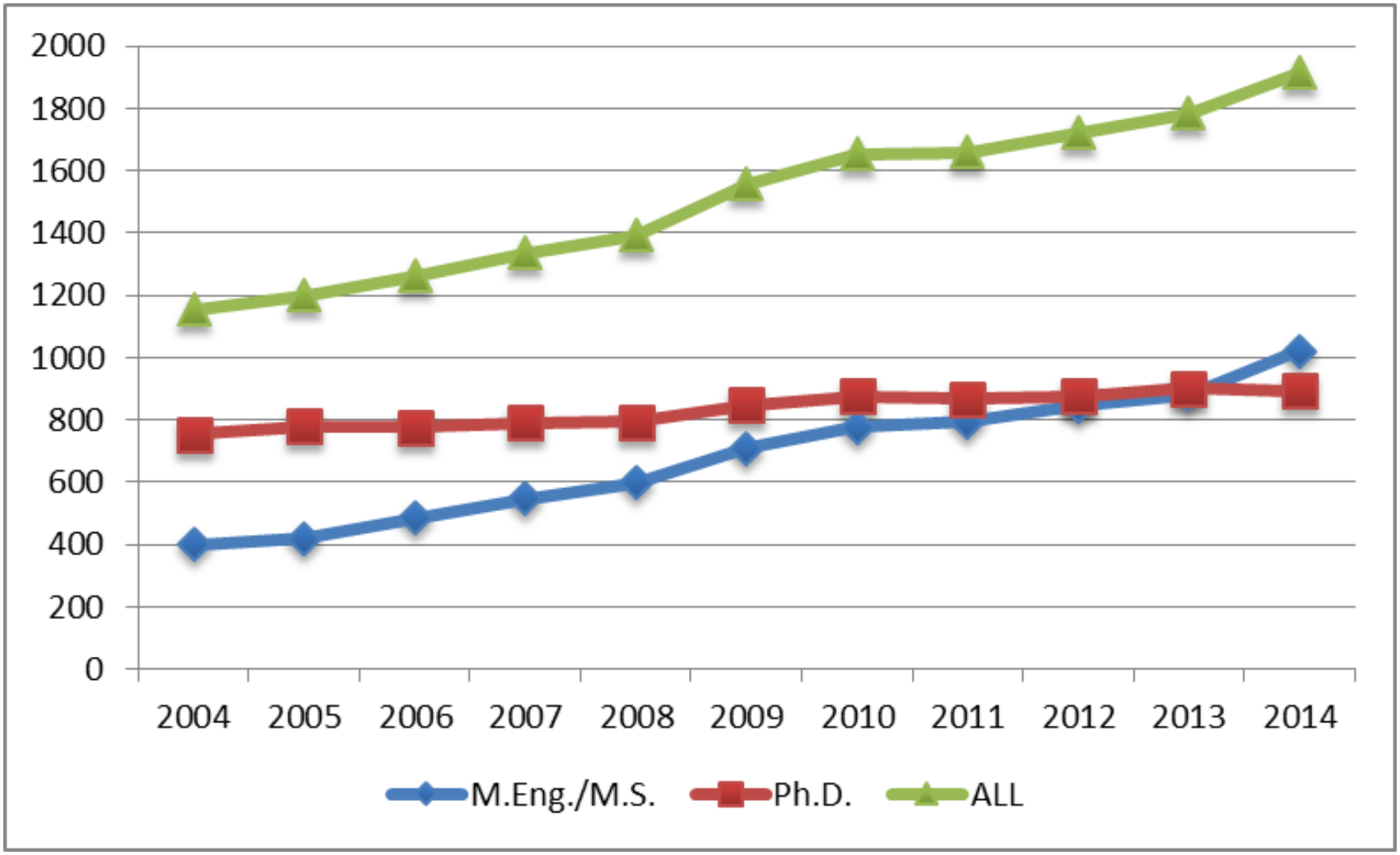
Engineering-Led Large Center Proposals

Advanced Materials: $23M NSF Materials Innovation Platform user facility for theory, computation, bulk crystals and novel characterization. *PI: Darrell Schlom, MSE*

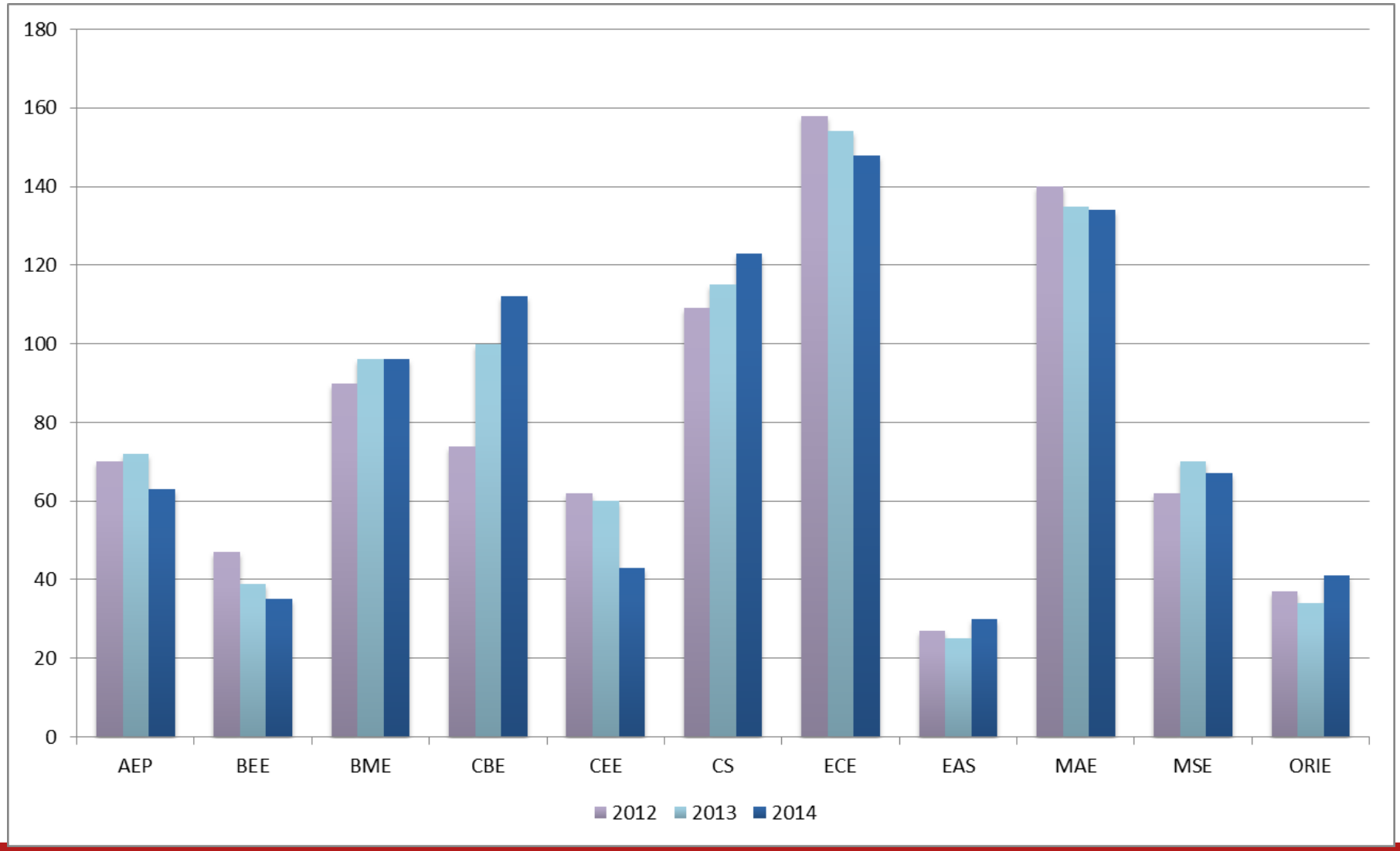
Bioengineering: $11M NIH Physical Sciences-Oncology Center to advance understanding and treatment of cancer through physical sciences research. *PI: Claudia Fischbach, BME*

Energy and the Environment: $18M NSF ERC to pioneer new materials for high-performance energy storage, water purification, and carbon capture. *Co-PIs: Lynden Archer, CBE and Emmanuel Giannelis, MSE*

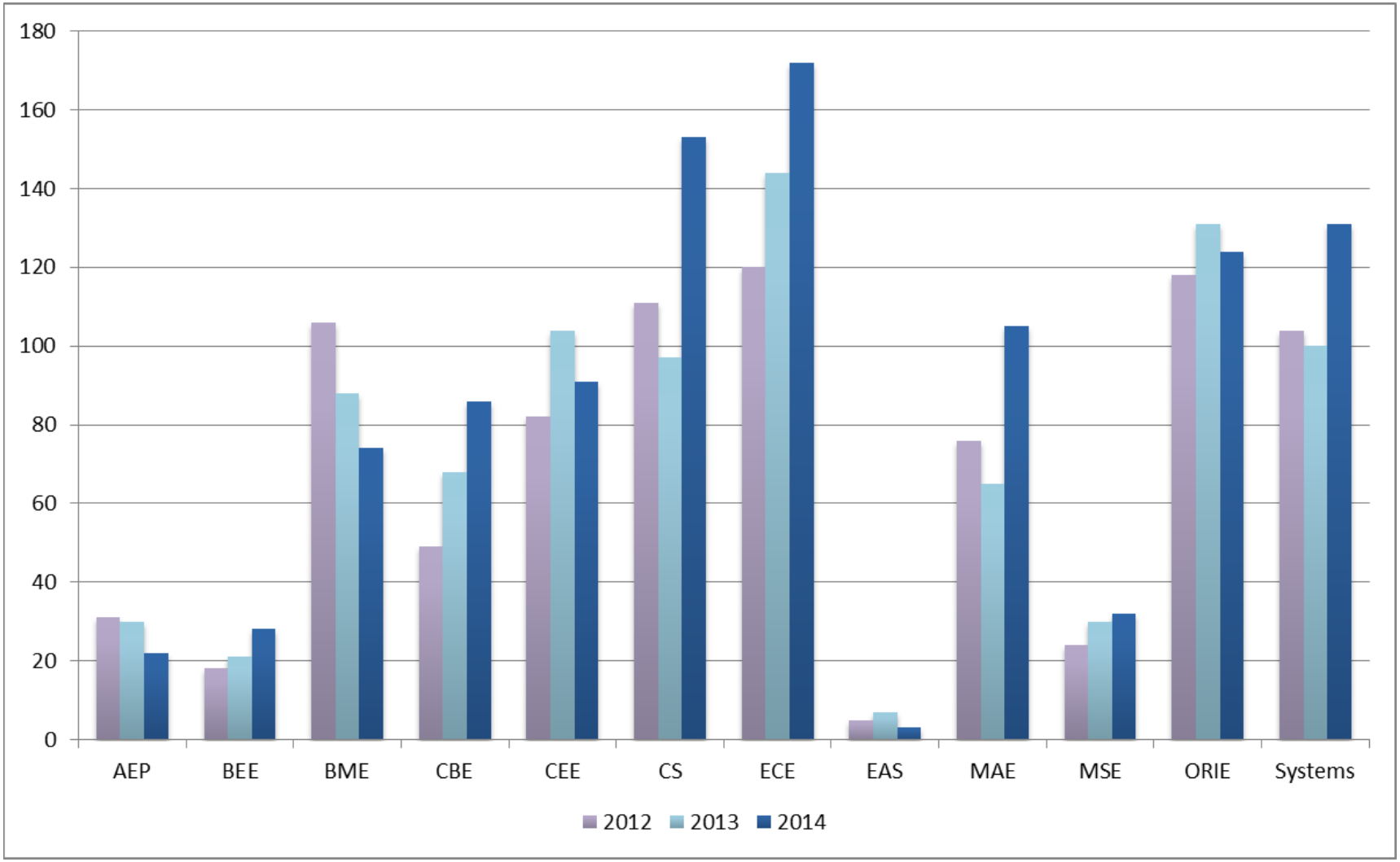
Graduate Student Enrollment



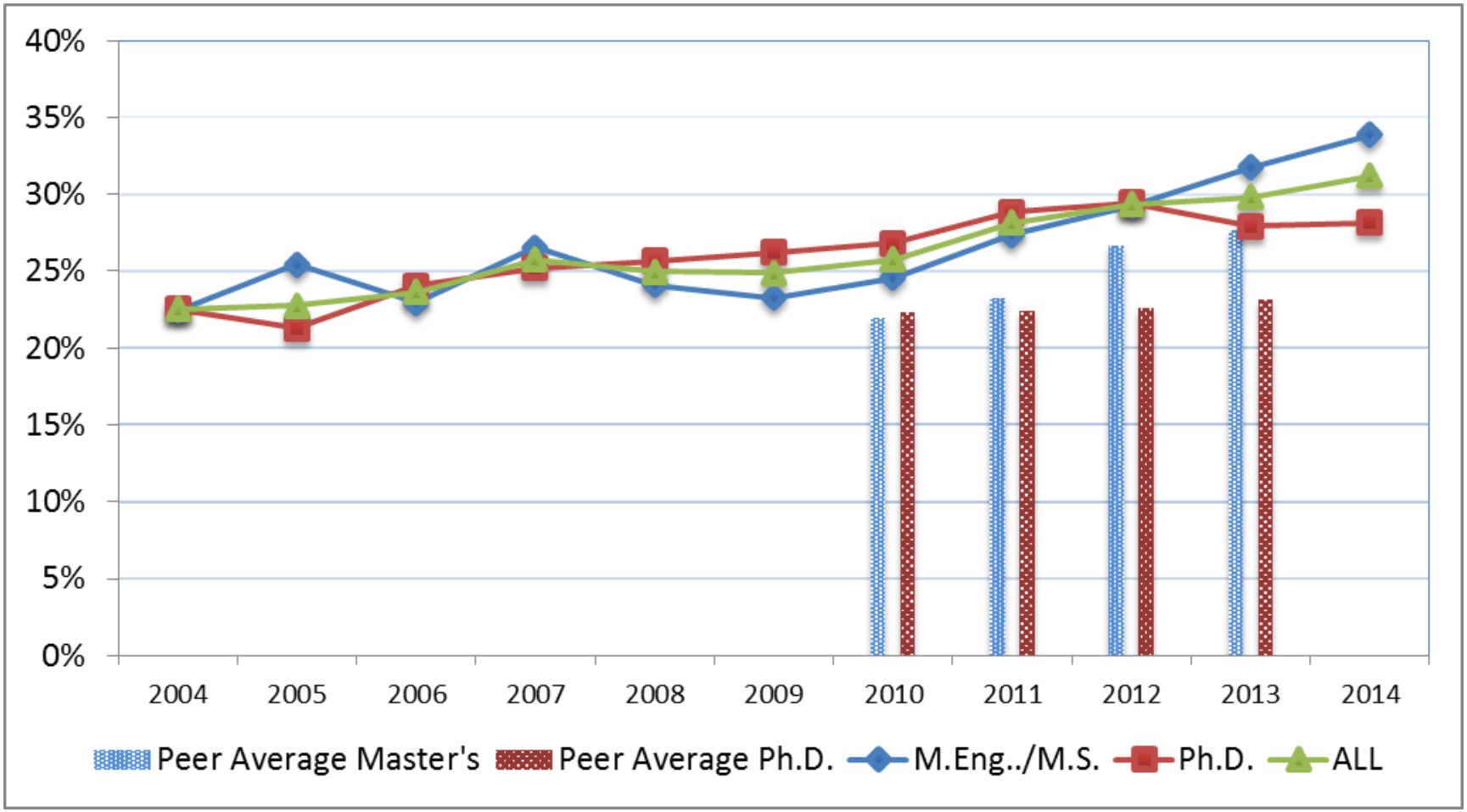
Ph.D. Enrollment by Field



M.Eng./M.S. Enrollment by Field

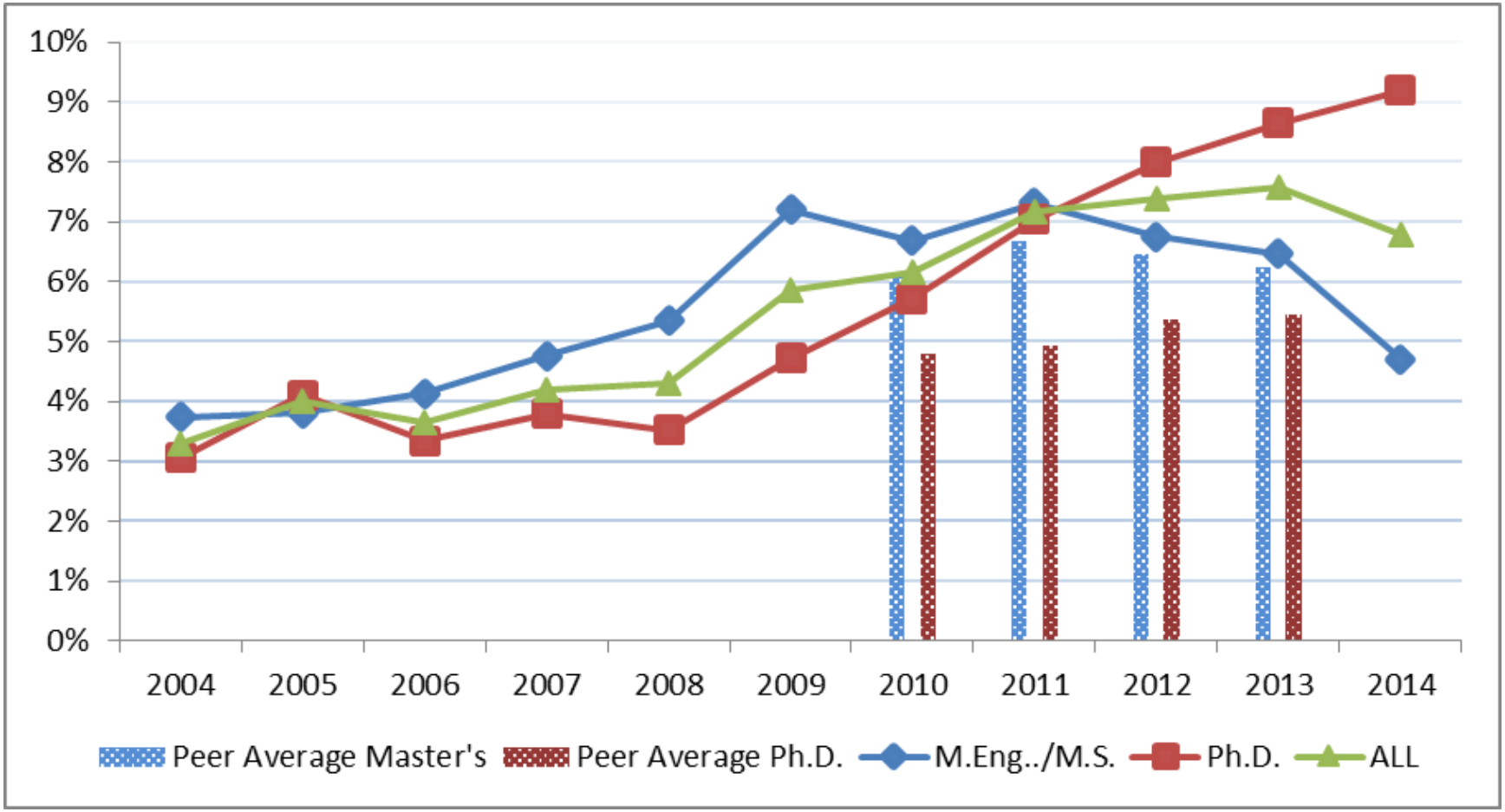


Graduate Student Enrollment Women



* Peers: Carnegie, Columbia, Georgia Tech, MIT, Princeton, Purdue, Stanford, UT Austin, Berkeley, UI-Urbana Champaign, Michigan
Source for peer data: ASEE data mining tool

Graduate Student Enrollment Under-represented Minorities



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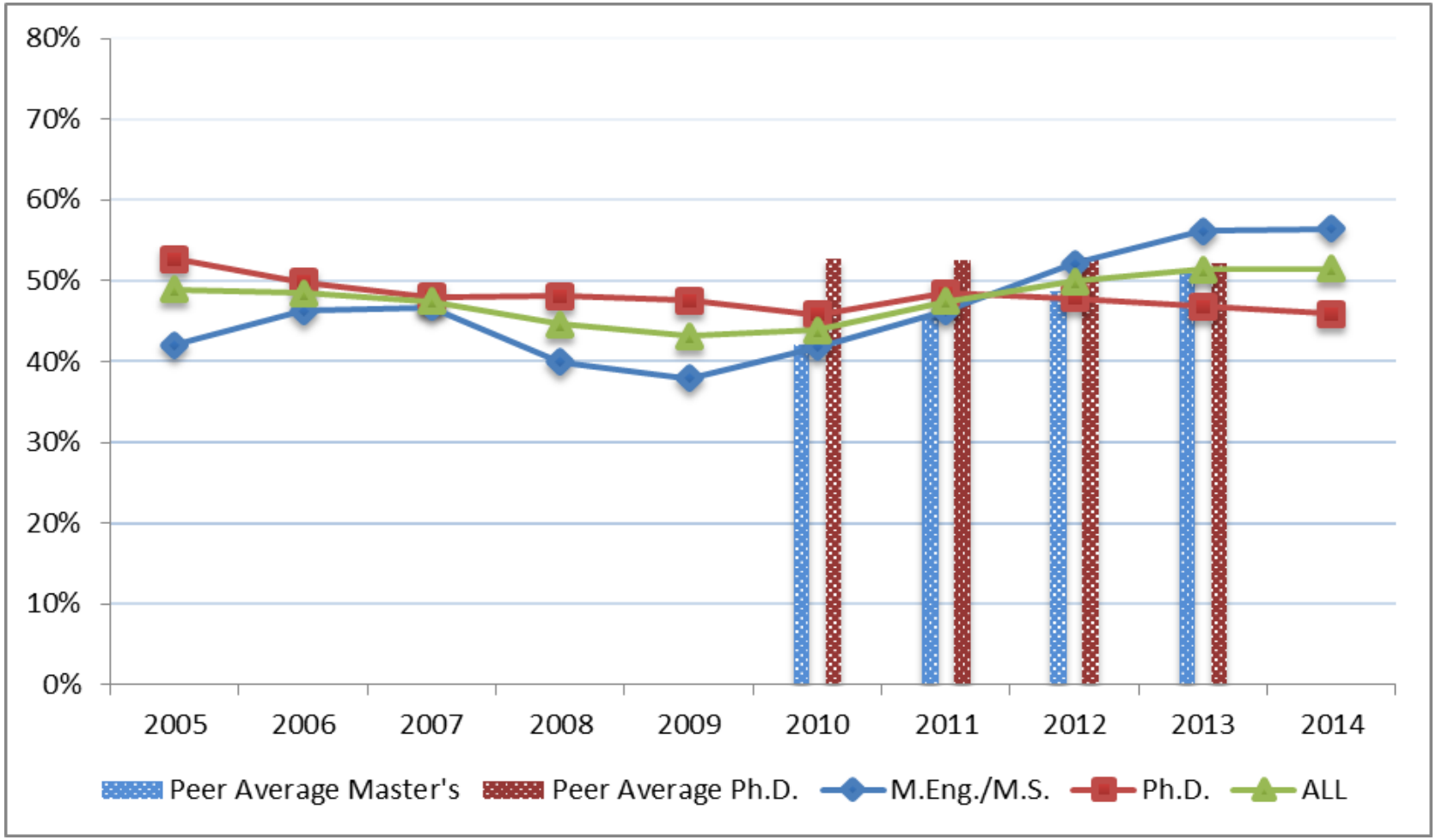
Source for peer data: ASEE data mining tool

Graduate Student Enrollment International

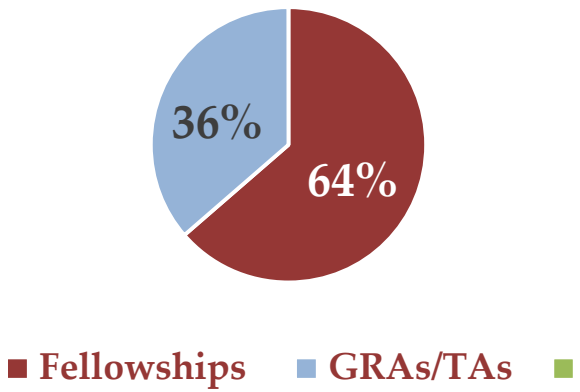


* Peers: Carnegie, Columbia, Georgia Tech, MIT, Princeton, Purdue, Stanford, UT Austin, Berkeley, UI-Urbana Champaign, Michigan
Source for peer data: ASEE data mining tool

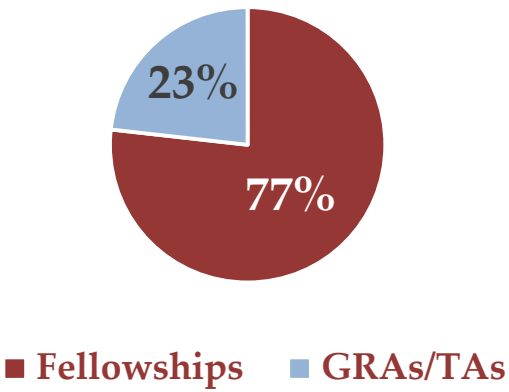
First-year PhD Funding

- Increase of recruitment PhD fellowships: from 26 to 56 starting Fall 2015
- Due to university budget model: increase reflects College allocated cost contribution
- Projected 77% of incoming PhD students to be supported on a fellowship for at least one semester in 2015-16

First Semester PhD Funding Fall 2014



***Projected* First Semester PhD Funding, Fall 2015**



DPE Highlights
March, 2015

Toward New Destinations

- Institutional diversity planning initiative
- Started 2012-2013, now in 3rd year
- Each college and unit selects five annual initiatives that best match their particular contexts and goals.
- These become areas of focused effort.
- Each unit reports annually on progress.
- Planning now for FY16 focus on the "Lived Experience of Diversity," addressing engagement & climate in the college

Organizing Rubric

- The framework is structured according to four core principles:
  - **COMPOSITION**
  - **ENGAGEMENT**
  - **INCLUSION**
  - **ACHIEVEMENT**
- Composition refers to the demographic make-up
- Engagement reflects personal, social, and professional commitment to institutional goals and activities; retention
- Inclusion comprises climate and interpersonal relations
- Achievement reflects levels of attainment for underrepresented individuals or groups

2014-’15 TND Plan

- **Faculty composition**
  - Search oversight, targets of opportunity, dual careers
- **Graduate student composition, engagement and achievement**
  - Sloan Foundation and Colman endowment funded minority Ph.D. program: fellowships, leadership, professional development, community building. Co-Host Graduate Horizons Conference.
- **Undergraduate achievement**
  - NSF funded CUES Program—to increase retention of URM and first generation students.
- **Staff inclusion**
  - College wide messaging at departmental staff meetings, college wide staff meeting with Ordinary People, followed by discussion and social event
- **Ph.D. student orientation**
  - Use interactive theater to bring an awareness of impacts of microagressions, implicit bias, stereotype threat, and tokenism

DPE Recent Highlights 2014-15

- DPE Director Sara Hernandez named Associate Dean for Inclusion and Student Engagement in the Cornell Graduate School
- Associate Director Jami Joyner Bowie named DPE Director
- Hosted Latino Leadership Summit & Screening of Underwater Dreams
- $500,000 grant from the Henry Luce Foundation to establish a Clare Boothe Luce Professorship.
- 2014 Claire L. Felbinger Award for Diversity from ABET

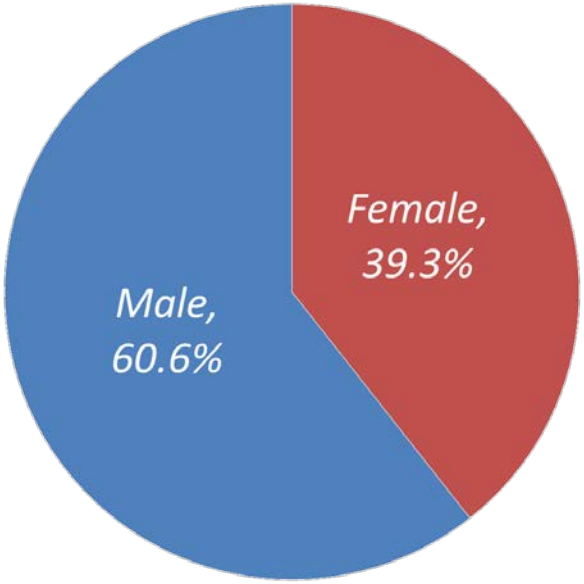
The Cornell Society of Hispanic Professional Engineers (SHPE) introduces the
2015 New York State Latino Leadership Summit

NYS Latino Leadership Summit
Building an Empowered Community

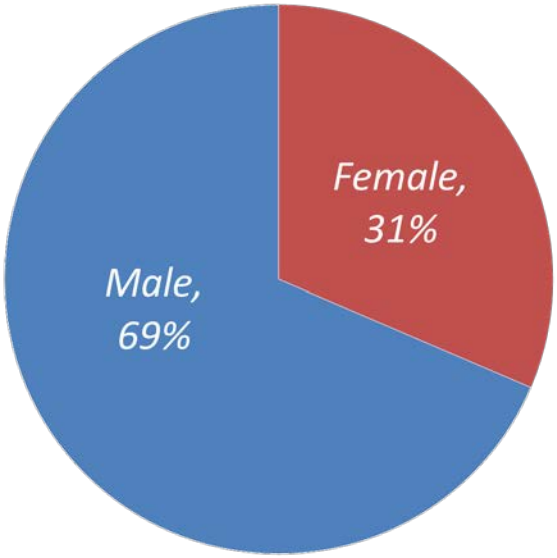
SHPE Cornell University
Society of Hispanic Professional Engineers

Gender Demographics

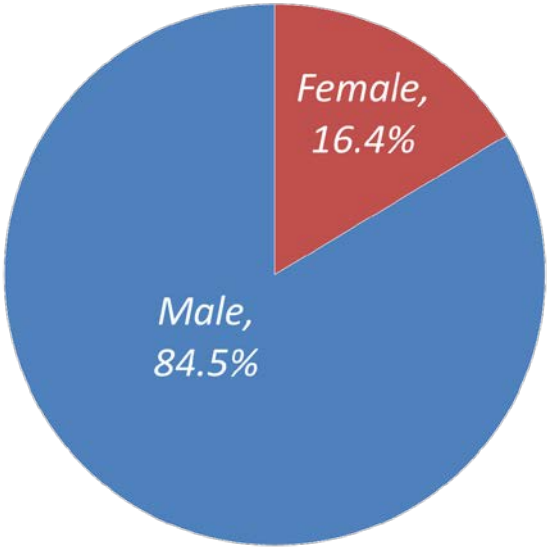
Undergraduate



Graduate



Faculty

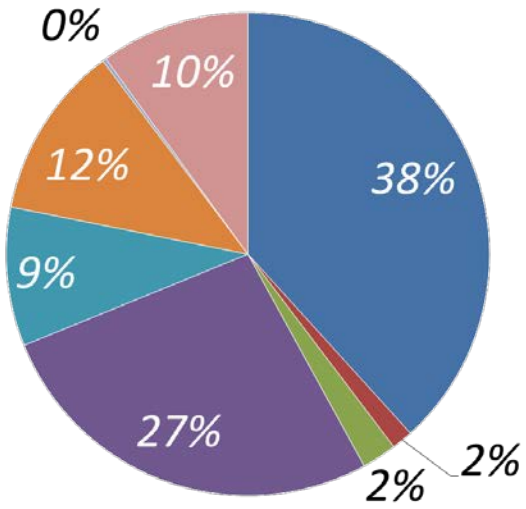


Representation of Women – National Averages:

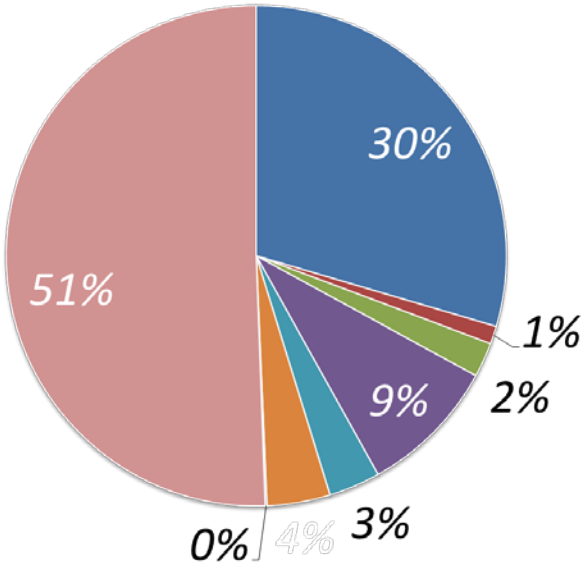
Undergraduate: 18% Graduate: 23% Faculty: 14%

Race/Ethnicity Demographics

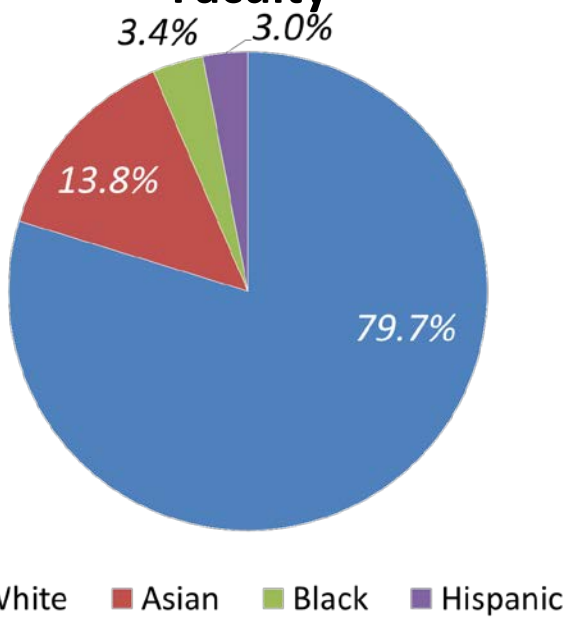
Undergraduate



Graduate



Faculty

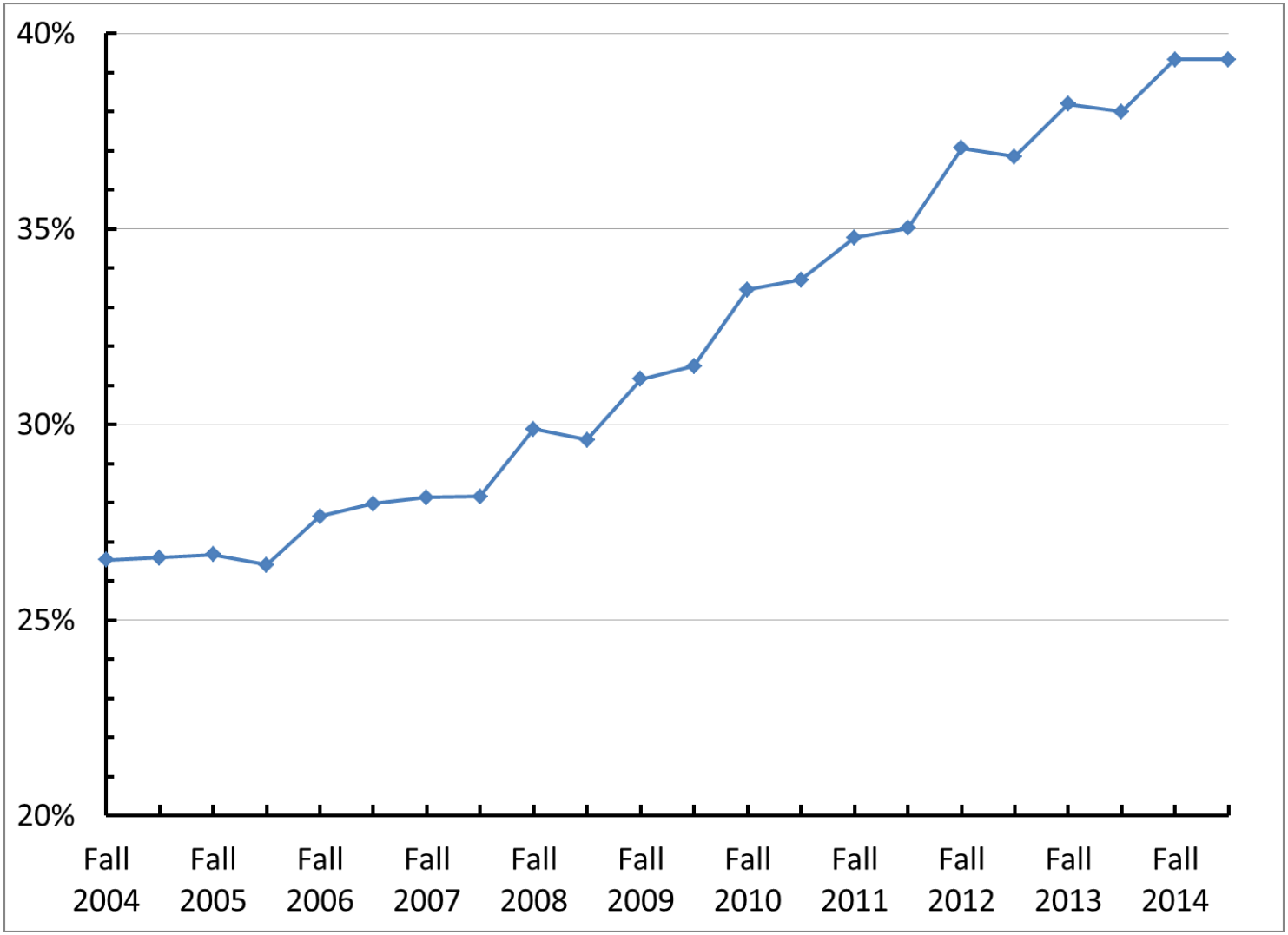


White
Multi-URM
Black
Asian American
Hispanic
Other
Native American
International

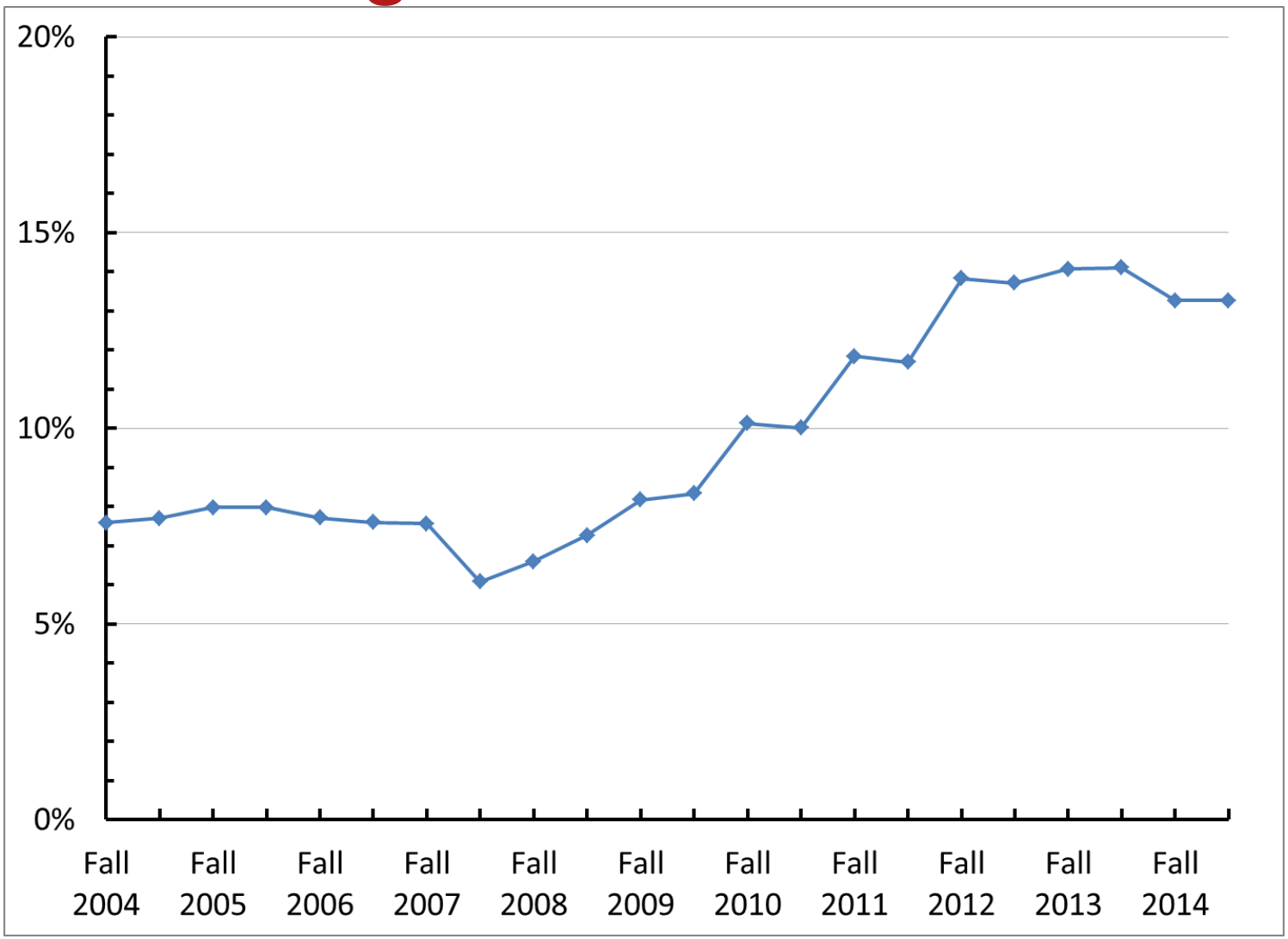
Underrepresented Minorities (URM) – Cornell and National Averages:

	Undergraduates	Graduates	Faculty
Cornell:	13.3 %	6.8 %	6.5 %
National:	16 %	7 %	6 %

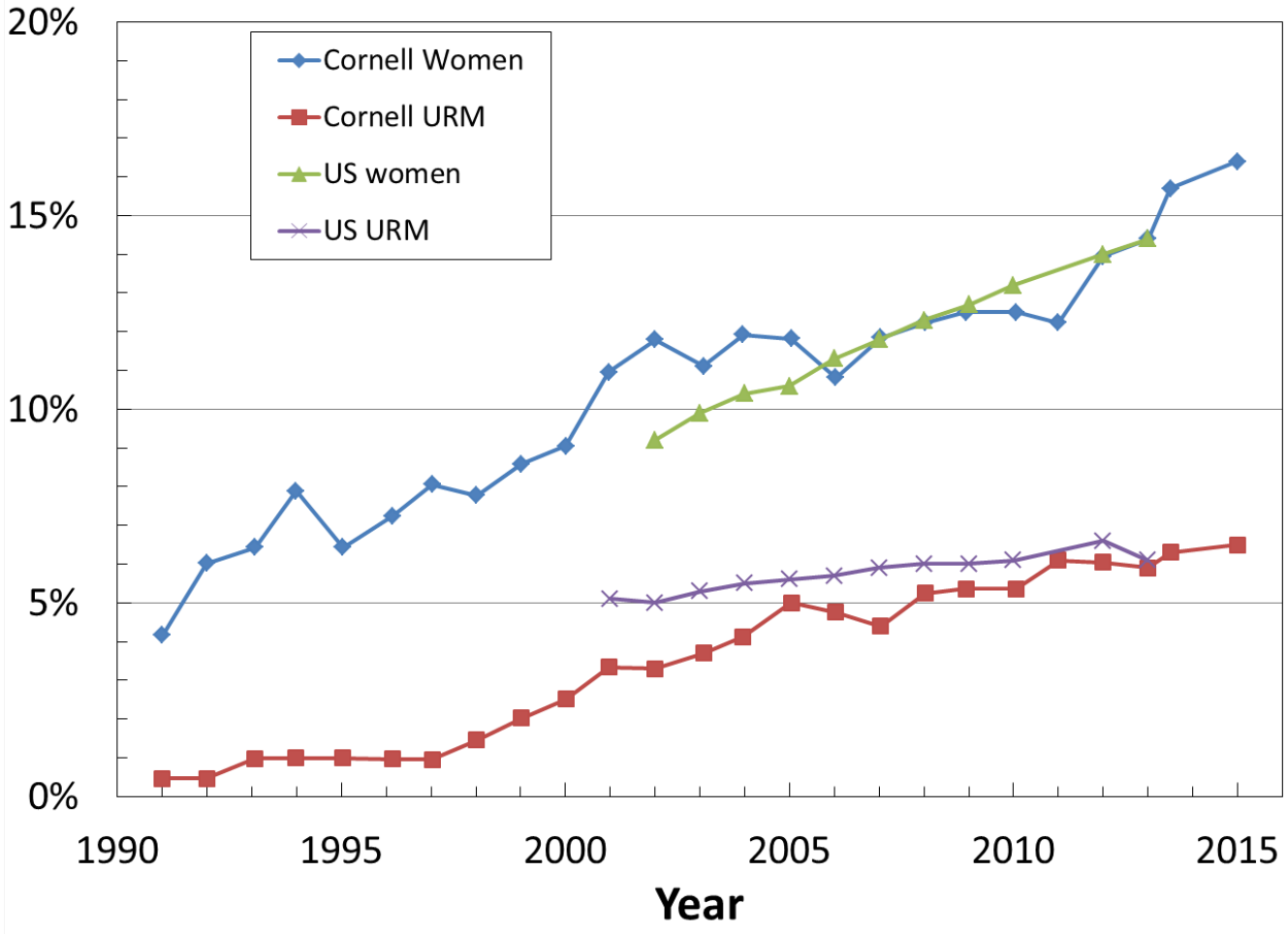
Women Undergraduate Enrollment



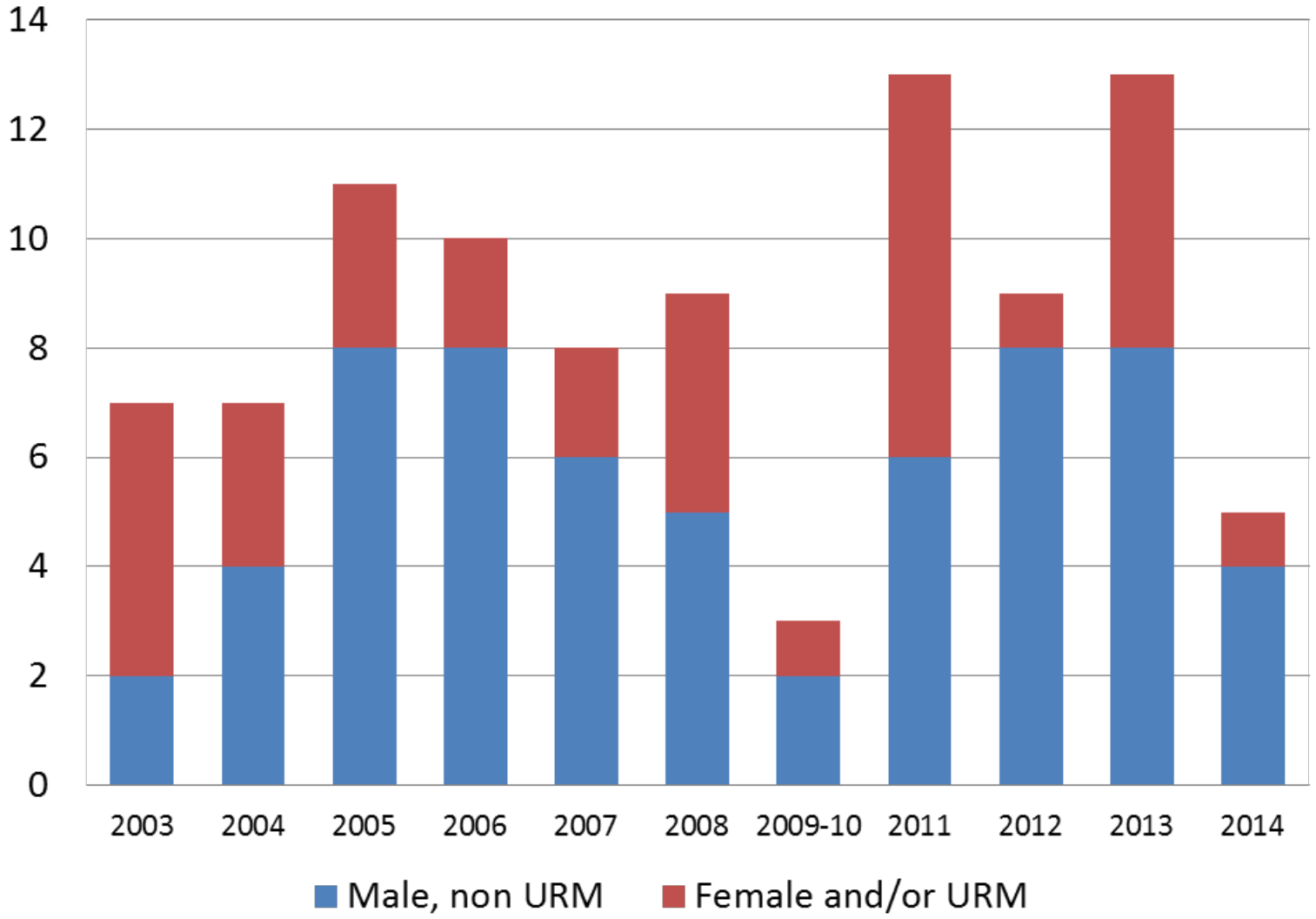
URM Undergraduate Enrollment



Faculty Diversity

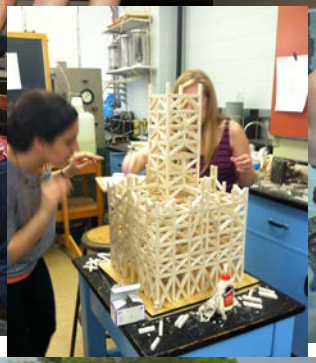


Faculty Hiring by Year



Student Project Team Highlights
March, 2015

The Project Team Experience



Academic Impact

With approximately 800 undergraduate engineers, 200 non-engineers, and 100 MEng students, team participants are potentially generating **6000** credit hours an academic year fulfilling the following requirements:

- ❑ liberal studies
- ❑ technical electives
- ❑ advisor- approved electives
- ❑ senior design

Additionally, seminars and discussions are held for the teams for professional development and practice, particularly:

- safety
- risk management
- finance/budgets
- marketing
- logistics
- project management
- simulation
- quality
- recruitment
- recognition

Important Impact

Mid-semester survey of project team participants:

Question: How important is or was each of these to you?

Project Team Participant Responses:

- **Project team opportunities influenced your choosing Cornell:** 55%
- **Project team was an important part of your Cornell experience:** 92%
- **Use of skills learned through your project team experience in your courses was important:** 88%

The Buzz

STUDENTS:
Working on a project team has taught me to work in a team, as well as to seek answers when they are not provided to me directly. I have used my learned abilities in all aspects of work and life.

My project team introduced me to programs and concepts before I encounter them in the classroom, and also gives me an intuition for many of these concepts

I think the team has helped a lot with my professional development and growth as a leader. Working on a team with so many subsystems is definitely challenging, but I do believe that our team does prepare students well for the workforce.

PARENT:
While .... loved the Cornell campus, I think the project teams and the tours of the engineering school really swayed her that Cornell was where she wanted to go.

RECRUITER:
Cornell stands out as a leader in this area—what you have is truly impressive.

Join us…..

CROWDFUNDING CAMPAIGNS ($100,000+)

Cornell Racing: LET'S GO FASTER *live*
CUAir: Help Us Soar Higher
Engineering World Health: Field Testing in Peru
CUAUV, AguaClara, Baja (2013)

TOURS

Always welcome to come check out what is going on. Spend an hour or a day!

EVENTS

Let's us know we are happy to get involved. Alumni, Professional Societies, Corporate, NGOs, K-12 and more!

CAREER FAIR BLITZ

Imagine a reverse career fair where the companies come to the teams. Invite all attending companies and notify sponsors to attend the night before in Duffield Hall. All teams are on display to provide a venue for the team participants to shine and get dream positions.

DESIGN REVIEWS

Teams could use critical feedback throughout there project cycle from experts in the field. These can be done in person on Ithaca campus or via webinars.

END OF THE YEAR BANQUET

Celebration of accomplishments and recognition of all efforts!

Follow us…

Bolivia - EWB
Morocco - ACM Programming
Honduras -AguaClara
OuterSpace - Violet

Engineering Co-op & Career Services Highlights March, 2015

Engineering Co-op & Career Services Initiatives

- **Class of 2014 Post Graduate Data (Undergraduates):**
  33% Grad School; 59% Employed; 5% Seeking Employment; 3% Other
- **B.S. Engineering Avg. Salaries remained unchanged:**
  ($72,263 in 2014 vs $72,287 in 2013)
- **B.S. CS Avg. Salaries fell 1.8% from 2013:** $94,457 to $92,731
- **M.Eng. Avg. Salaries jumped 12.7% from 2013:** $78,244 to $88,211
- **Employers Hiring 8 or More Engineering Students in 2014:**
  Oracle (37); Amazon (19); Lockheed Martin (17); Microsoft (15); Google (14); Accenture (12); Schlumberger (9); Workday (8); PriceWaterhouseCoopers (8)
- **125 Employers & 1,560 students** attended the February Career Fair
- **69 students (**43 Women / 26 Men**) Participated in Co-op in 2014-15**

College Facilities Update
March, 2015

Facilities: Providing The Built Environment Supporting Engineering's Strategic Vision

- **Functionally Enhance:**
  - Research
  - Learning
  - Student development
  - Scholarship
- **Attract and Retain Faculty to Want to be Here**
- **Model Best Energy and Sustainability Practices**
- **Project a Forward-Looking Engineering Presence**

Master Plan Update

- **BME Expansion for New Undergraduate Program**
  - Concept Study Underway
- **Major Renovations on Quad**
  - Kimball Hall Wet Labs–Nearing Summer, 2015 Completion
  - New façade for Upson finalized
  - Upson Hall Full Renovation–construction start in June, 2015
- **Individual Department / Building Projects**
  - For new faculty and programs; to distribute available space

Major Renovations on Quad

- **Kimball Hall** – Wet labs (bio, hybrid, chemistry)

- **New façade plan** – High performance & modern aesthetics

- **Upson Hall** – MAE, project teams, renewal

Others

- **Snee**–geochemistry cleanroom in construction.
- **Duffield & Bard**–Faculty labs in design & construction.
- **Olin**–Unit Operations lab design nearly completed.
- **Rhodes**–Relocation of labs from Upson planned.
- **Carpenter**–SE lab in design, Johnson studio study; consolidated Student Services & Administration delayed for Upson project.
- **Server Consolidation**–Supports Upson project.
- **Ongoing**–faculty startups, classrooms, public spaces, maintenance, other departmental, energy conservation.

College of Engineering
Cornell Now
Campaign Update

Campaign Progress

Cornell Now Goal	$185,000,000
Cornell Now Total	$195,100,000 (as of 3/1/15)

* Cornell Now Campaign Ends 12/31/15

Fiscal Year 2015 Goal	$ 66,000,000
Fiscal Year 2015 Total	$ 23,600,000 (as of 3/1/15)

Fiscal Year 2015 Annual Fund Goal	$ 2,000,000
Fiscal Year 2015 Annual Fund Total	$ 1,264,333 (as of 3/1/15)

ECC Member Participation	22 of 27 or 81%

Cornell Engineering

Breaking Rules to Advance Engineering Science

Brand: Phase Two
March 2015

We continue to define…Breaking the Rules to…

The excitement and buy-in grows…

We were successful in 2014:

Rebrand all web sites. College and Departments

- Use Breaking the rules design as well as new logo and dept. signatures.
  - Start: March 2014
  - Completed: March 2015, on target

Launched the new Cornell Engineering logo in all we do.

- Including changing the "engineering gear" store to new logo.
  - Start: March 1, 2014
  - End: Complete.

Incorporate new logo into all College promotions.

- Including student teams, banners, etc.
  - Start: March 1, 2014
  - End: Almost complete.

We were successful in 2014:

Design all Dept. Newsletters with new templates and high quality.

- Have done 5 redesigns, 3 more to be done in Spring
  - Start: September 2014
  - End: June 2015

Design the Cornell Engineering magazine in-house. 4 issues

  - Start: Fall 2013
  - End: Ongoing

Experts Guide on the Web Site (for easy access for reporters)

  - Start: February 2014
  - End: September 2015

Positive Harris Interactive Poll Stats

What is the overall quality of Cornell Engineering compared to the 20 best engineering programs in the country?

2013

- 31% placed Cornell in top 5
- 77% in the top 10

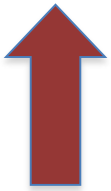
2014

- 36% placed Cornell in top 5
- 76% in the top 10.

Vocus Media Reporting Stats

Media Hits 2013: 3847

Media Hits 2014: 7213

87% 

We listened when you said…

Be and be perceived!

So we are working to increase awareness!

Brand: Phase Two

Phase Two Objectives

Create the next phase communications and engagement platform that supports the strategic plan and the brand:

- Amplify Cornell's leadership in the engineering domain
- Increase word of mouth
- Enhance brand differentiation
- Impact rankings and recruitment—students, faculty & partners

Brand: Phase Two

Climate:

Current move to position engineers and STEM fields as the place to be:

- Examples: NAE (Are you changing the conversation?), Exxon Mobil (Reasons to #bean Engineer), Verizon (Inspire her mind)
- Chance to become and engineering champion. In a formal way.

Phase Two: New PR Plan

Themes and thought-starters … 3-Pronged Approach

1. The People of Cornell Engineering – "The Right Stuff"
2. The Process of Cornell Engineering – "Prepare to Fail"
   "Failure is simply the opportunity to begin again, this time intelligently."- Henry Ford
3. The Impact of Cornell Engineering—"In your dreams…"

Brand: Phase Two

Social Media Plan/PR Plan Implementation:

Based on testing, monitoring, increased awareness through implemented PR campaign. In addition to work that we are already doing.

Social Media/PR Monitoring:

Two proposals from competing products to review:

- Radian 6
- Public Relay

Brand: Phase Two

Social Media Audit (Feb-June)

Competitive analysis of Cornell Engineering social media properties and the social media properties of three (3) competitors. Using tools we don't have access to currently.

- Social SWOT analysis of each institution
- Social Media Skim of online conversation surrounding CornellEngineering and competitors

Brand: Phase Two

Social Media Optimizations (Feb-June)

- Review our LinkedIn University properties
- Development of LinkedIn Company Page
- Development of branded creative assets
- Page content optimized for searchability, engagement and growth
- Organic content recommendations, creation and plan for implementation

Brand: Phase Two

Paid Social Media Implementation and Testing (Feb through June)

- Phase one of paid social media strategy and execution
- Work closely to determine messaging and key stories to elevate
- Test creative and messaging
- Develop a social media plan of action for FY16 that may include training, organic content development, ambassador programs and other considerations
- Continue to Diversify Messaging by platform: Diff. target audiences for each: LinkedIn, Facebook, Twitter, YouTube

Brand: Phase Two

Thoughts?

Call me

Cornell Tech

We develop pioneering leaders and technologies for the digital age

Spring 2015

$50M Verizon gift names Cornell Tech executive ed center

CORNELL TECH

Thank you!

Lance R. Collins
Dean of Engineering

March 12-13, 2015