

# CornellEngineering Update

Lance R. Collins  
Dean of Engineering

April 7-8, 2016

# Agenda

- General updates
  - College Leadership Updates
  - New Faculty, Awards
  - Research and Graduate Studies Highlights
  - Admissions Highlights
  - DPE Highlights
  - Project Team Highlights
  - Co-op and Career Services Highlights
- Facilities Update
- Cornell Now Campaign Update
- Cornell Tech Update

# Director of Systems Engineering



**Oliver Gao**

**Director of Systems Engineering**

- Joined Cornell in 2005.
- Associate Professor of Civil and Environmental Engineering
- J.P. and Mary Barger '50 College of Engineering Excellence in Teaching Award 1990
- Degrees received
  - B.S. 1996 in Civil Engineering/Environmental Science, Tsinghua University
  - M.S. 1999 in Civil Engineering, Tsinghua University
  - Ph.D. 2004 in Civil Engineering University of California, Davis
  - M.S. 2004 in Statistics and Agriculture and Resource Economics, University of California, Davis
- Research Focus – transportation and environment (especially air quality and climate change), energy and sustainable development.

# New Faculty

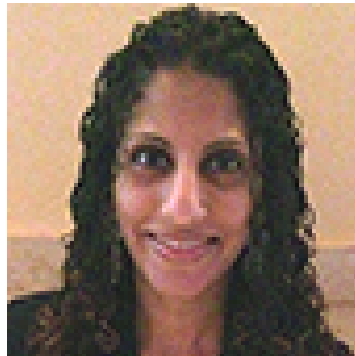
(Arrivals Spring 2016)



*Guy Hoffman*  
*Asst. Professor, MAE*



*Samitha Samaranayake*  
*Asst. Professor, CEE*



*Nelly Andarawis-Puri*  
*Asst. Professor, MAE*



*David Kammer*  
*Asst. Professor, CEE*

# New Faculty

(Arrivals Spring 2016)



*Greg Bewley*  
*Asst. Professor, MAE*



*Fengqi You*  
*Professor, CBE*



*Nicki Dell*  
*Asst. Professor, Cornell Tech IS*

# Major Faculty Awards

- **NSF Faculty Early Career Development (CAREER) Award**
  - Katie Keranen (EAS)
  - Ankur Singh (MAE)
  - Chris Alabi (CBE)
- **Presidential Early Career Award for Scientists and Engineers (PECASE)**
  - Lena Kourkoutis (AEP)
- **American Institute for Medical and Biological Engineering (AIMBE)  
College of Fellows**
  - Claudia Fischbach-Teschl (BME)
  - Cynthia Reinhart-King (BME)

# Major Faculty Awards

- **Google Faculty Research Awards**
  - Yoav Artzi (CIS)
  - Eva Tardos (CIS)
  - Robbert van Renesse (CIS)
- **Association for Computational Linguistics (ACL) Fellow**
  - Claire Cardie (CIS)

# \$50 Million Gift Creates Robert Frederick Smith School of Chemical and Biomolecular Engineering



**Robert F. Smith '85**  
**Founder, Chairman & CEO**  
**Vista Equity Partners**

- A combined \$50 million commitment.
- Gift will support Chemical and Biomolecular engineering and African-American and female students in the College of Engineering.
- Gift will also create the Robert Frederick Smith Tech Scholars Program for select high school seniors with financial need focusing on African-American and female students who will be invited to earn an undergraduate degree at Cornell Engineering, followed by a one-year technical master's degree at Cornell Tech.



# Cornell Neurotech Launched with \$2.5 Million Gift from Mong Family Foundation



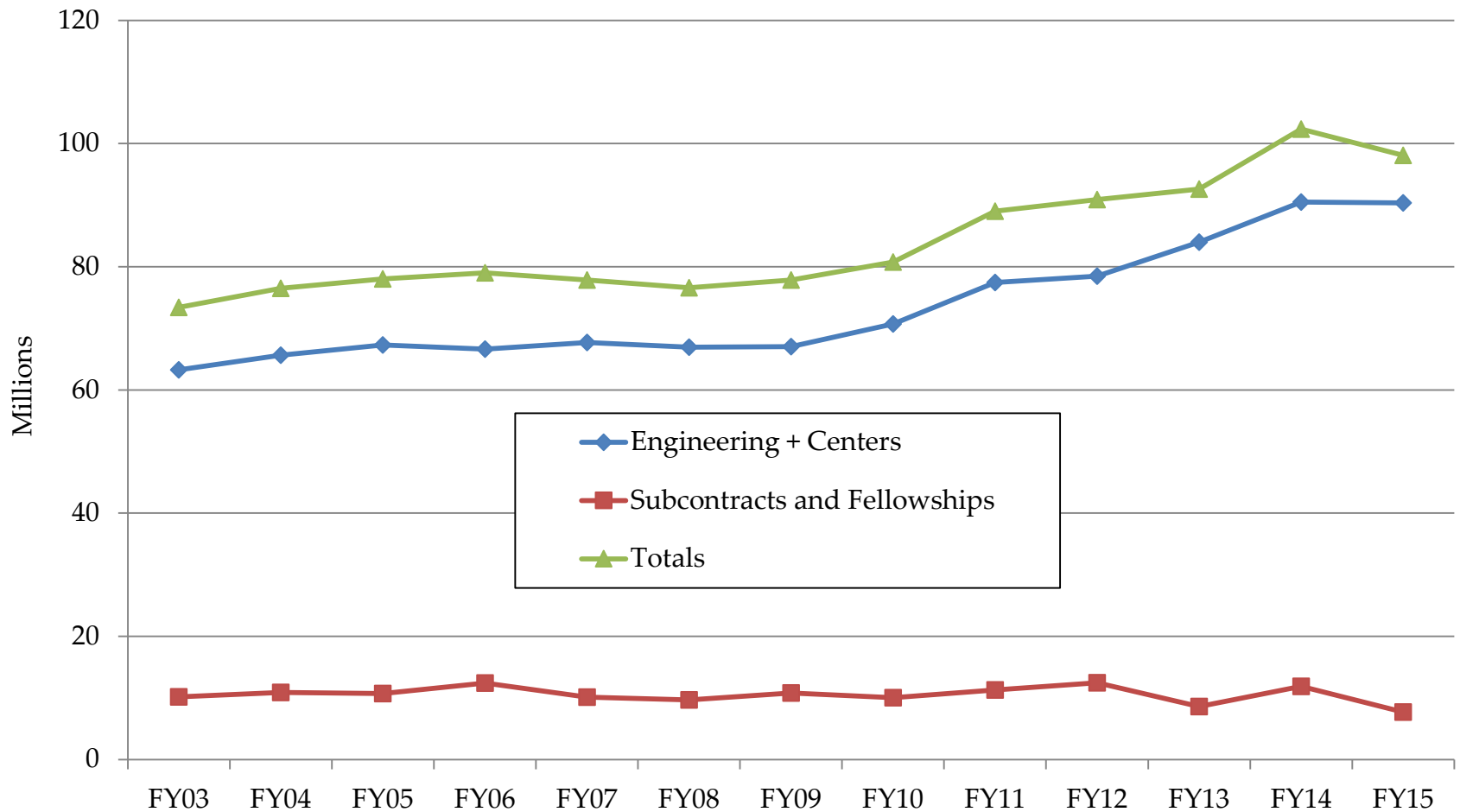
**Stephen Mong**  
**'92, MEN '93, MBA '02**  
**Founder & Managing Director**  
**Orien Capital Management LLC**

- \$2.5 Million gift from the Mong Family Foundation, through Stephen Mong '92, MEN '93, MBA '02.
- Goal of Cornell Neurotech is to develop technologies and powerful new tools needed to reveal the inner workings of the human brain, with a particular focus on how individual brain cells and complex neural circuits interact at the speed of thought.
- Strong connection to the White House BRAIN Initiative.
- Co-directors:
  - Joseph Fetcho, Professor, Neurobiology and Behavior
  - Chris Xu, Professor, Applied and Engineering Physics
- Mong Fellows (4 per year, 1.2 in high risk lab, ½ in traditional lab)

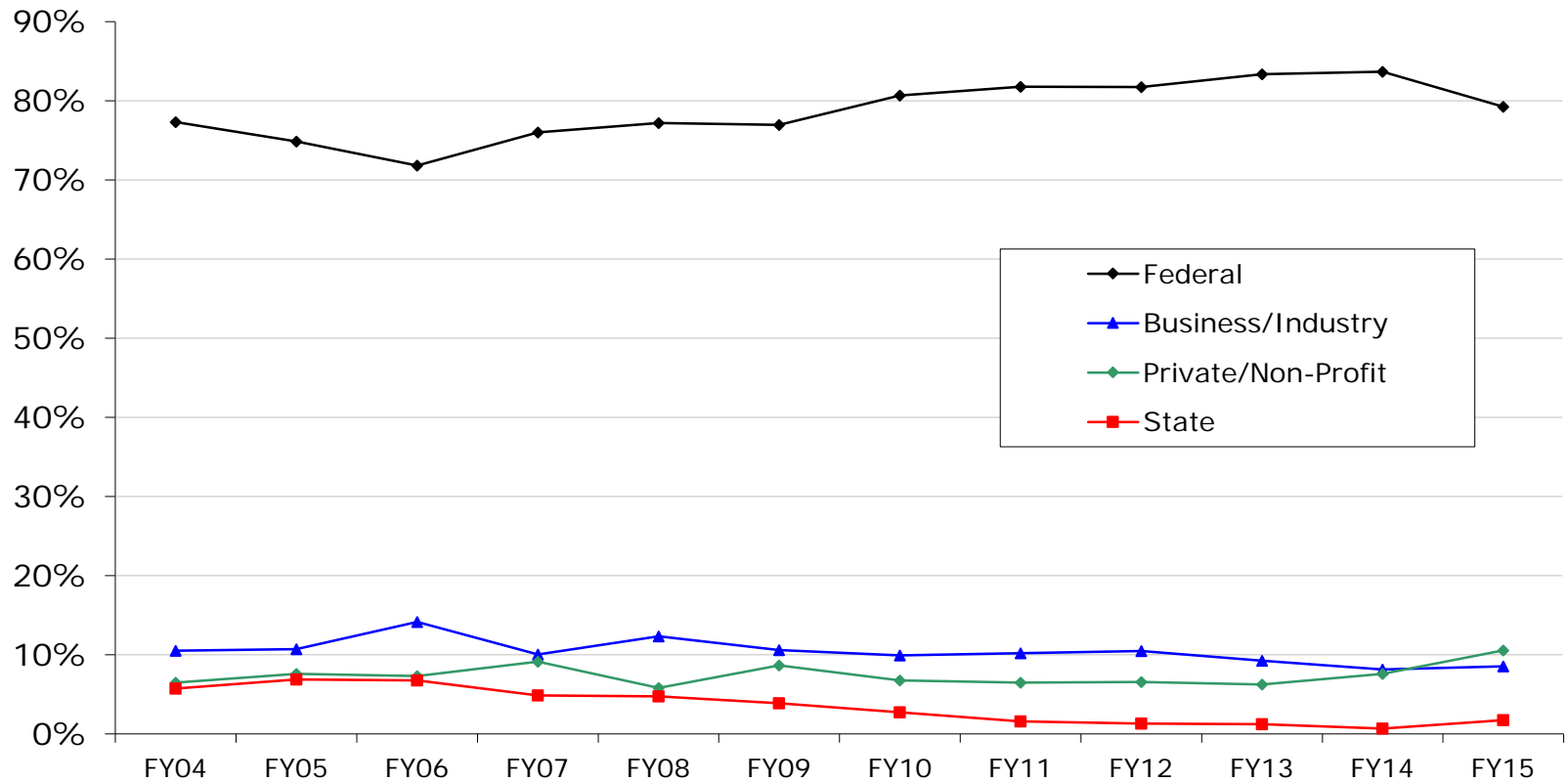
# Research and Graduate Studies Highlights

## April, 2016

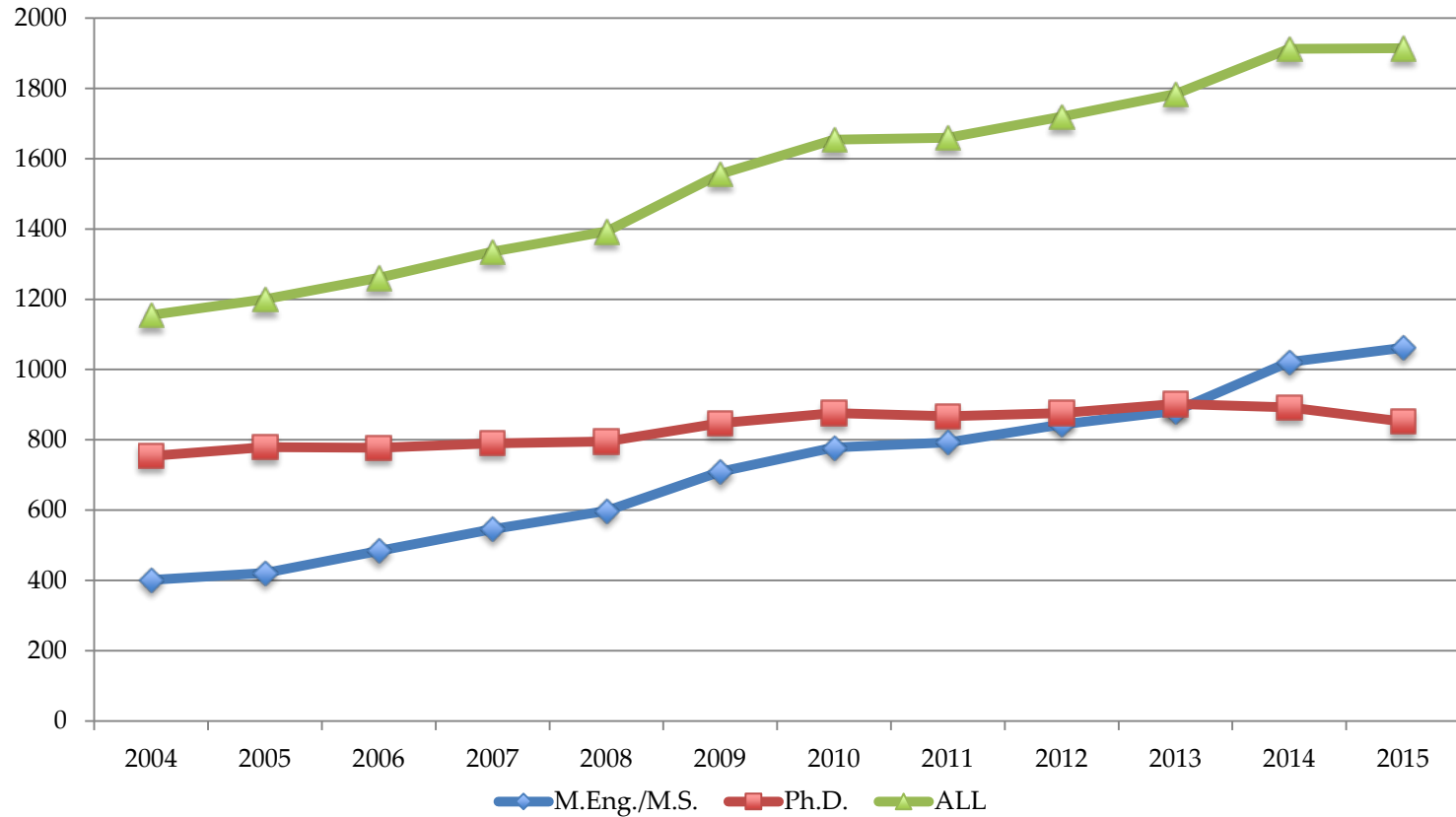
# Research Expenditures



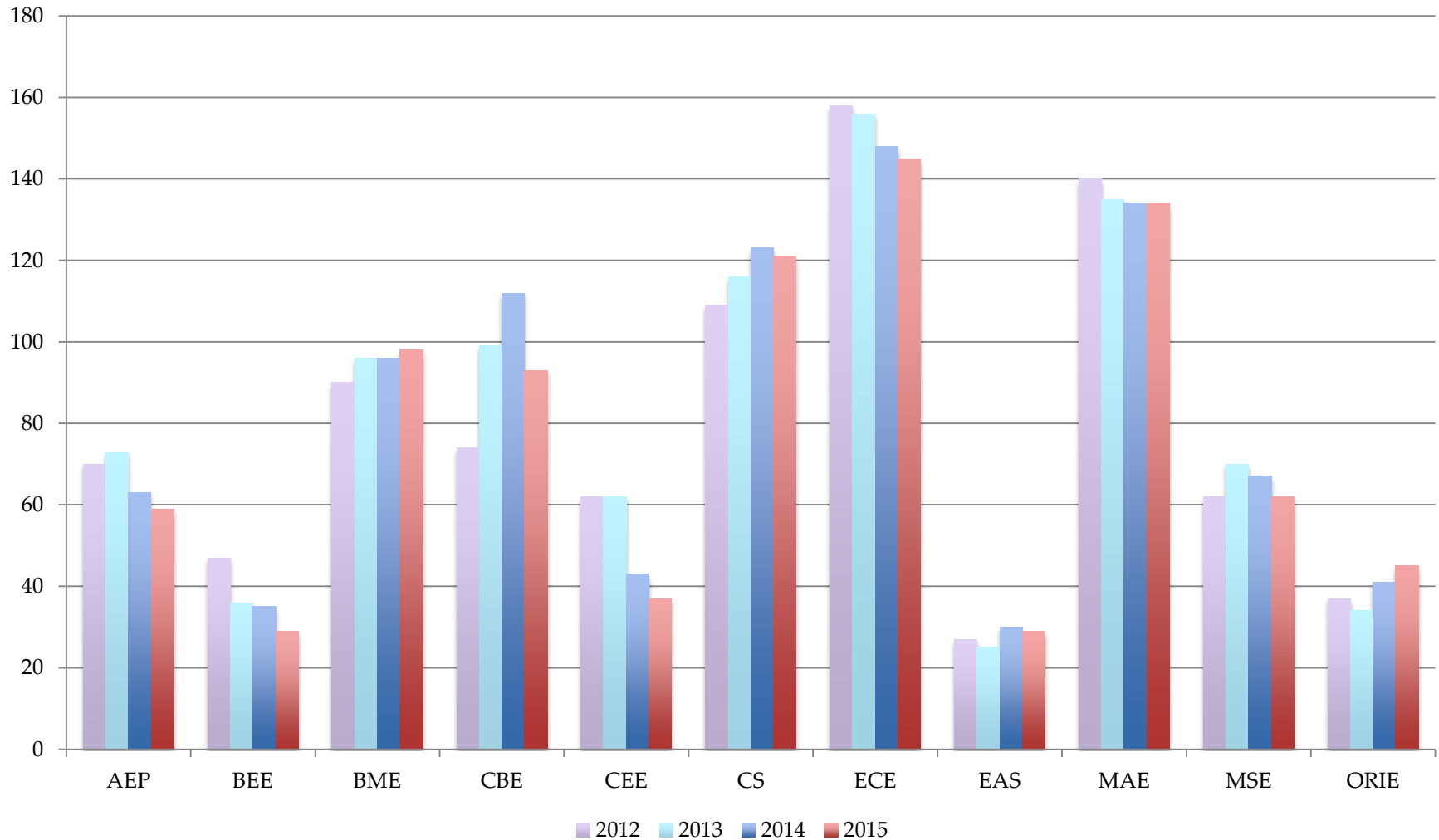
# Percent Distribution of Research Expenditures



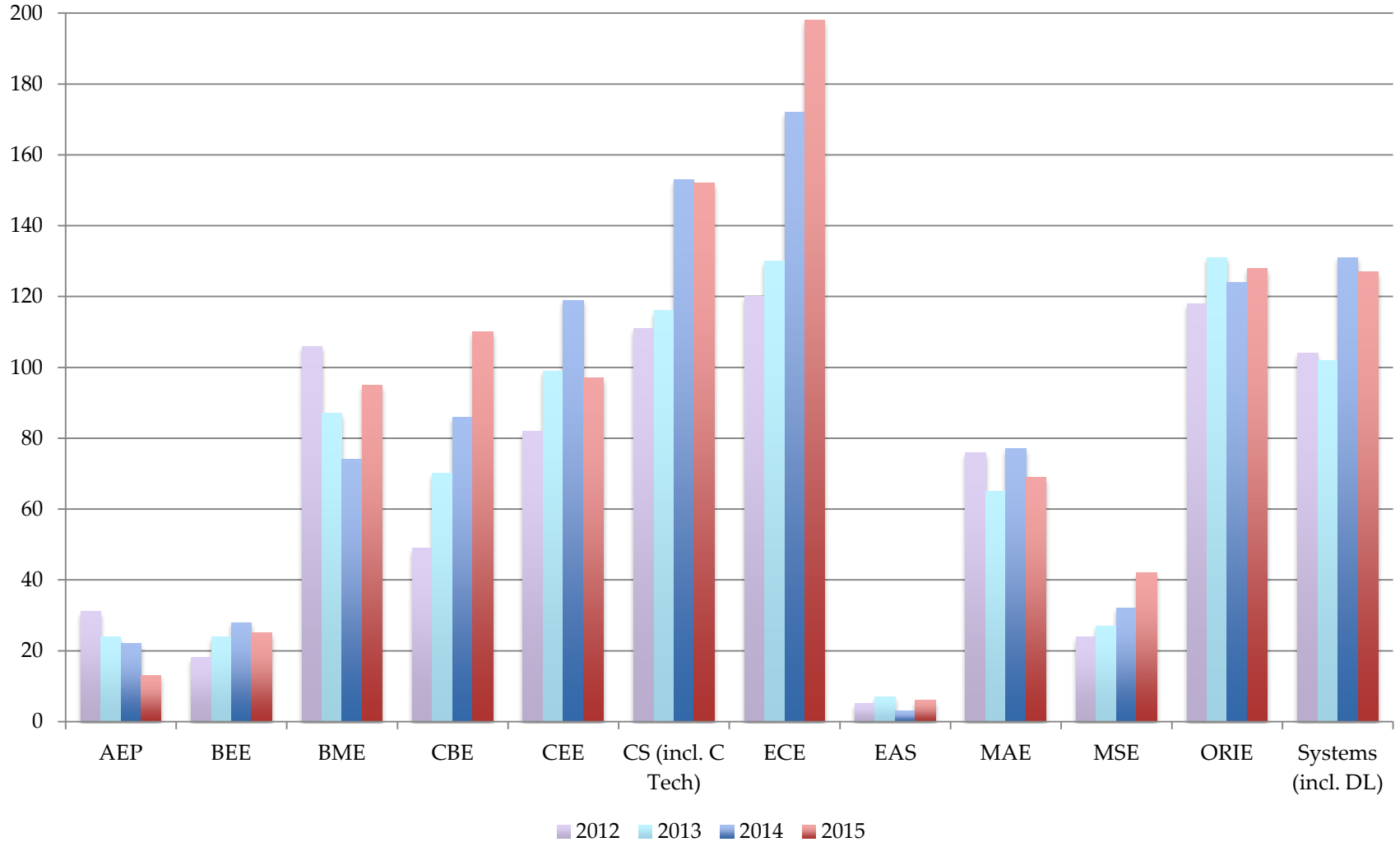
# Graduate Student Enrollment



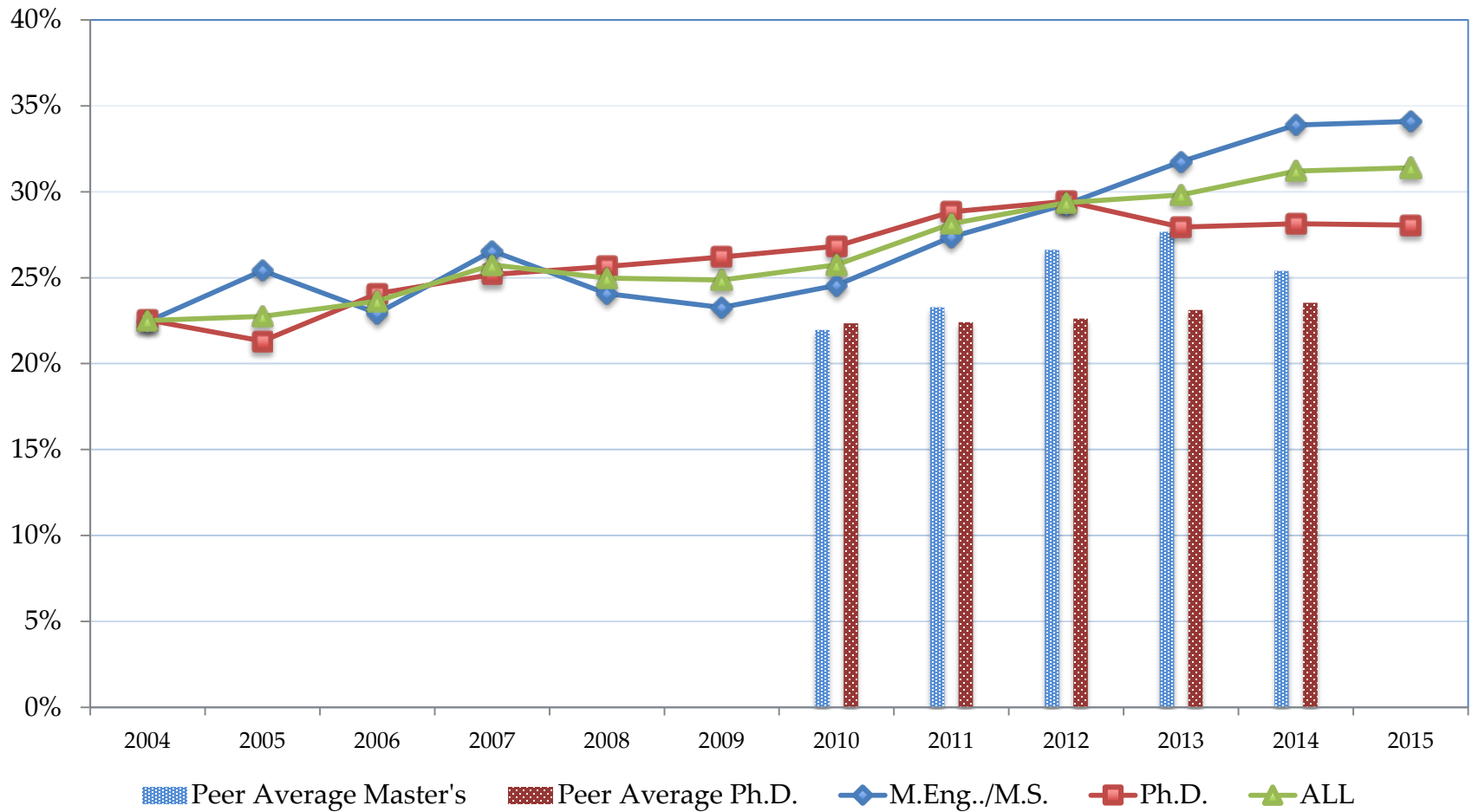
# Ph.D. Enrollment by Field



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



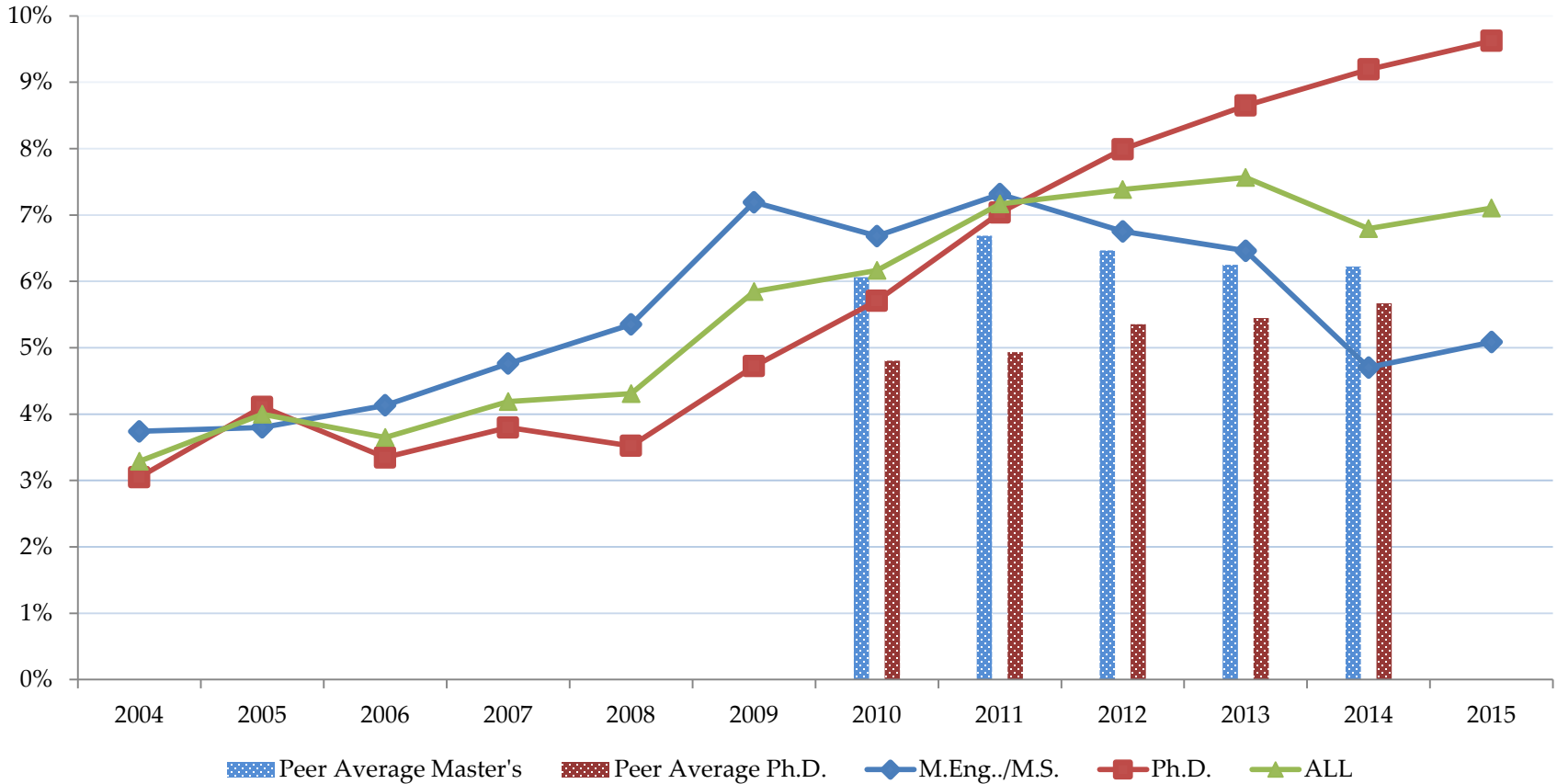
# Graduate Student Enrollment Women



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

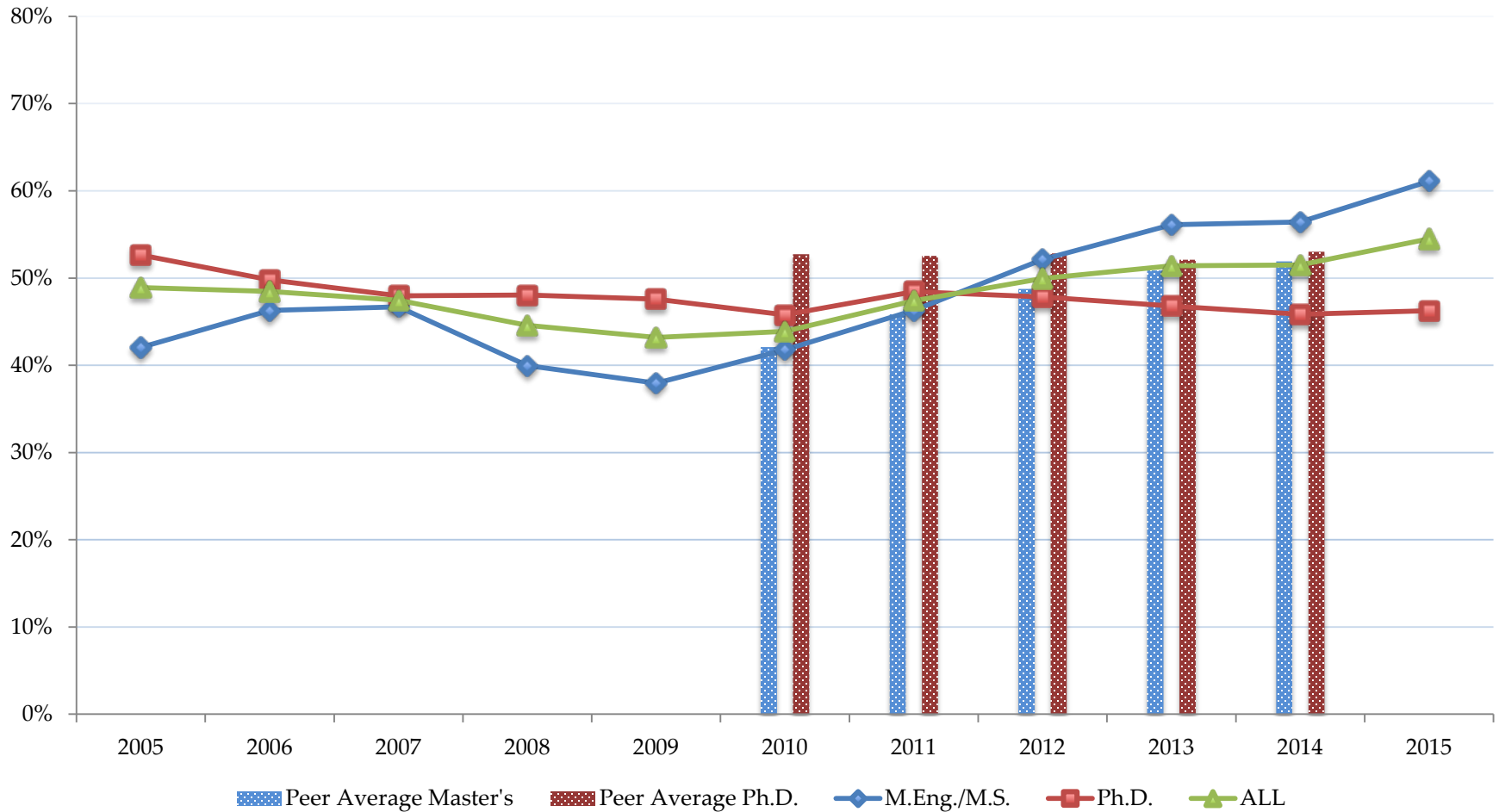


# Graduate Student Enrollment Underrepresented Minorities



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

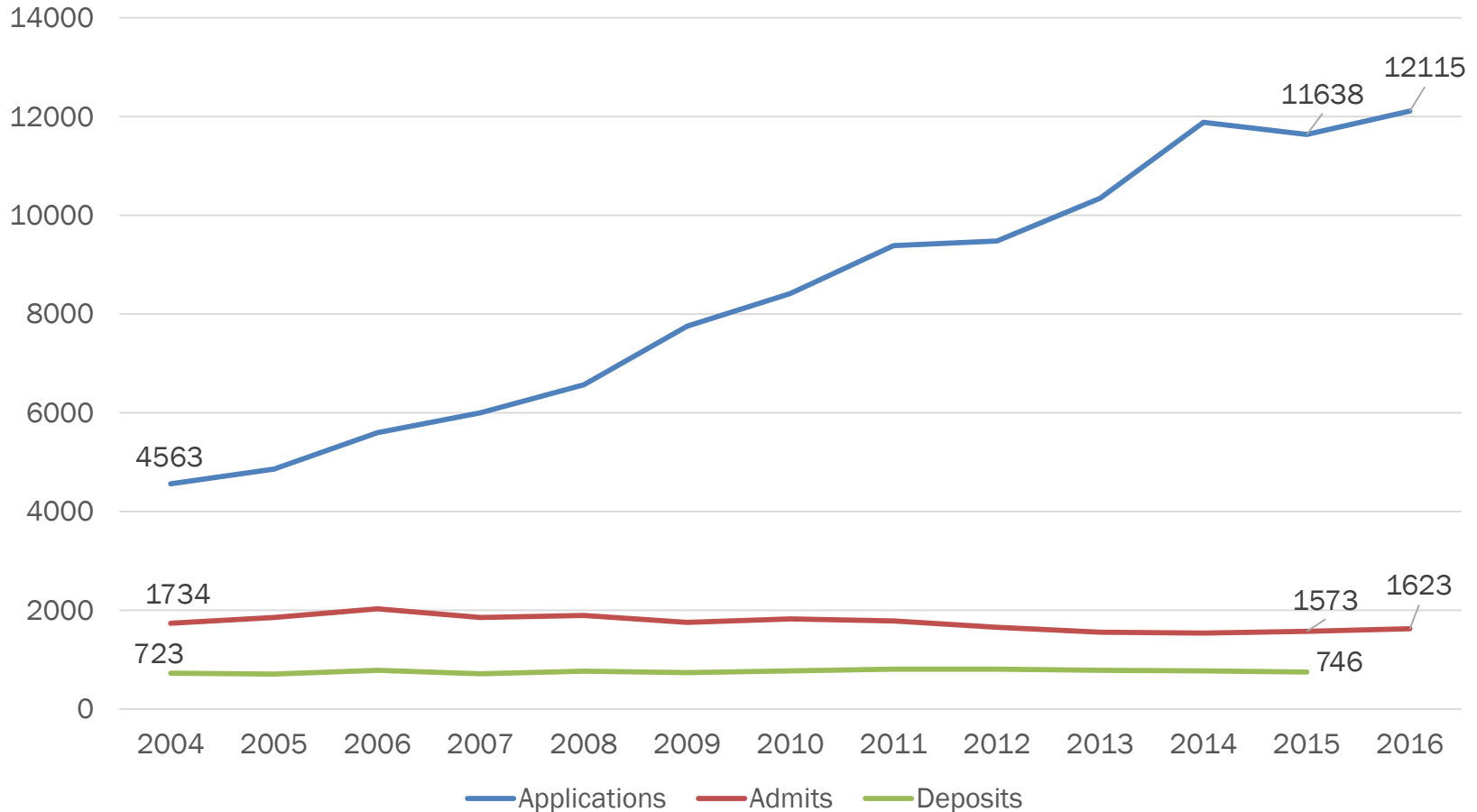
# Graduate Student Enrollment International



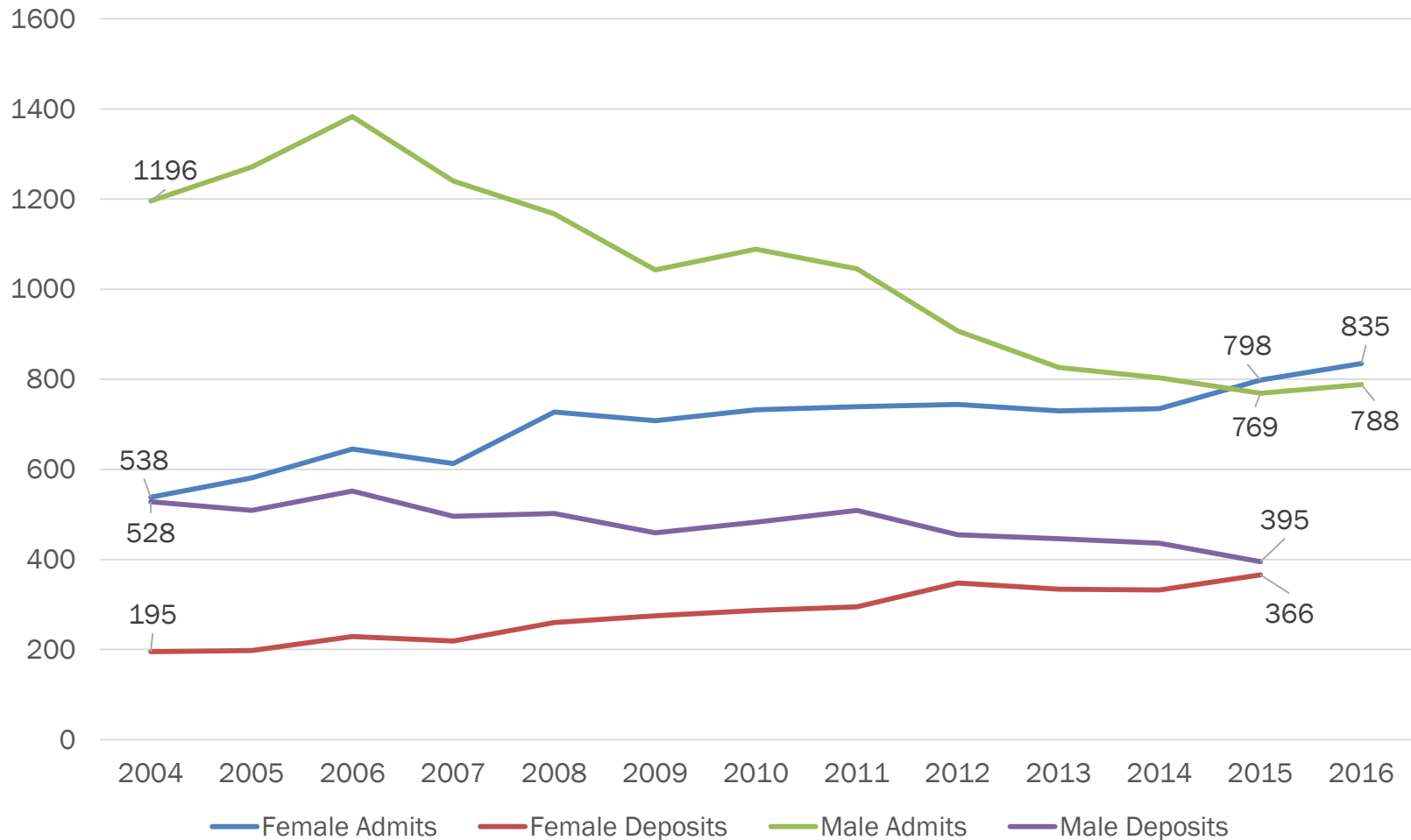
\* Peers: Carnegie, Columbia, Georgia Tech, MIT, Princeton, Purdue, Stanford, UT Austin, Berkeley, UI-Urbana Champaign, Michigan  
Source for peer data: ASEE data mining tool

# Admissions Preliminary Highlights April, 2016

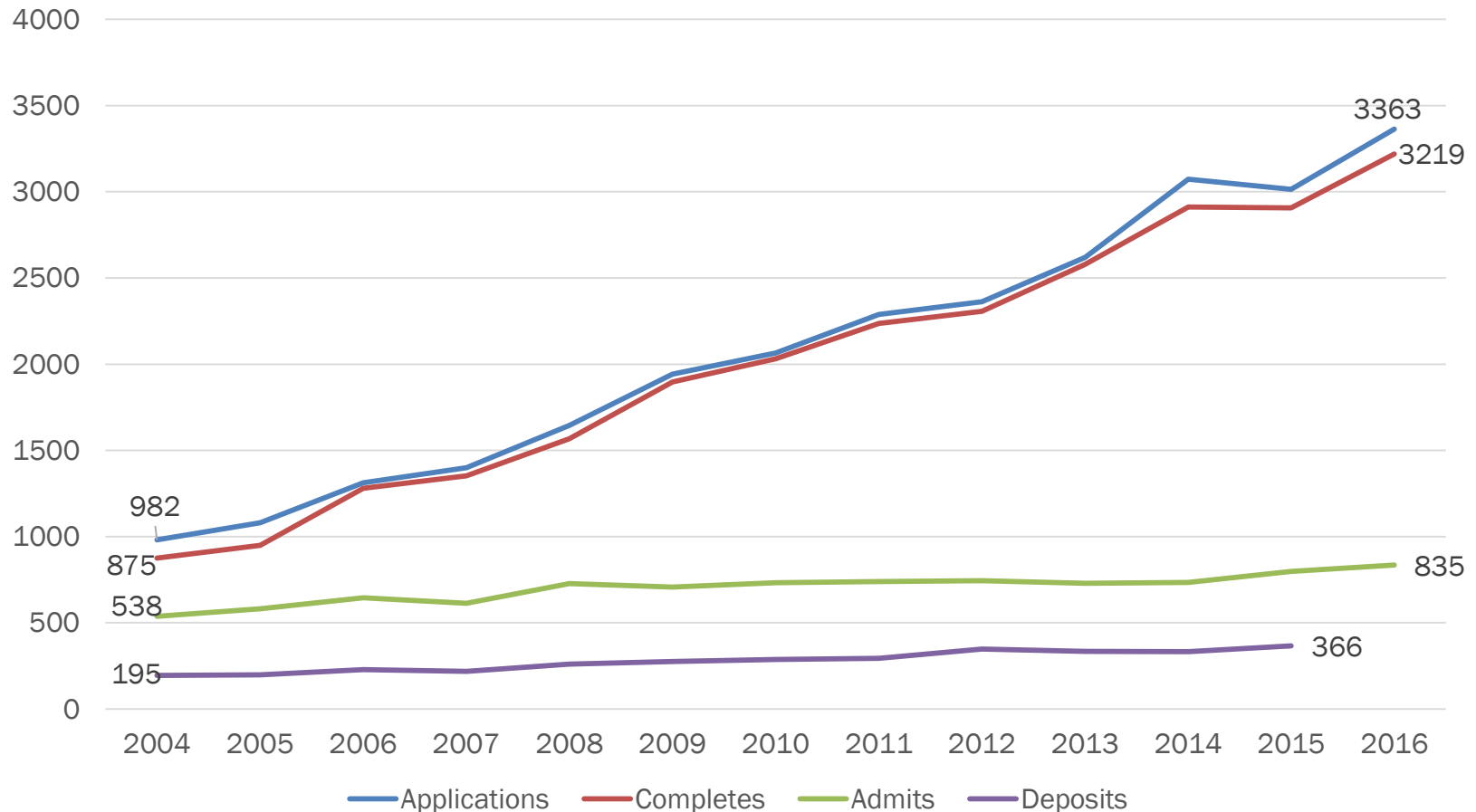
# UG Engineering Applications, Admits, Deposits: 2004 – 2016



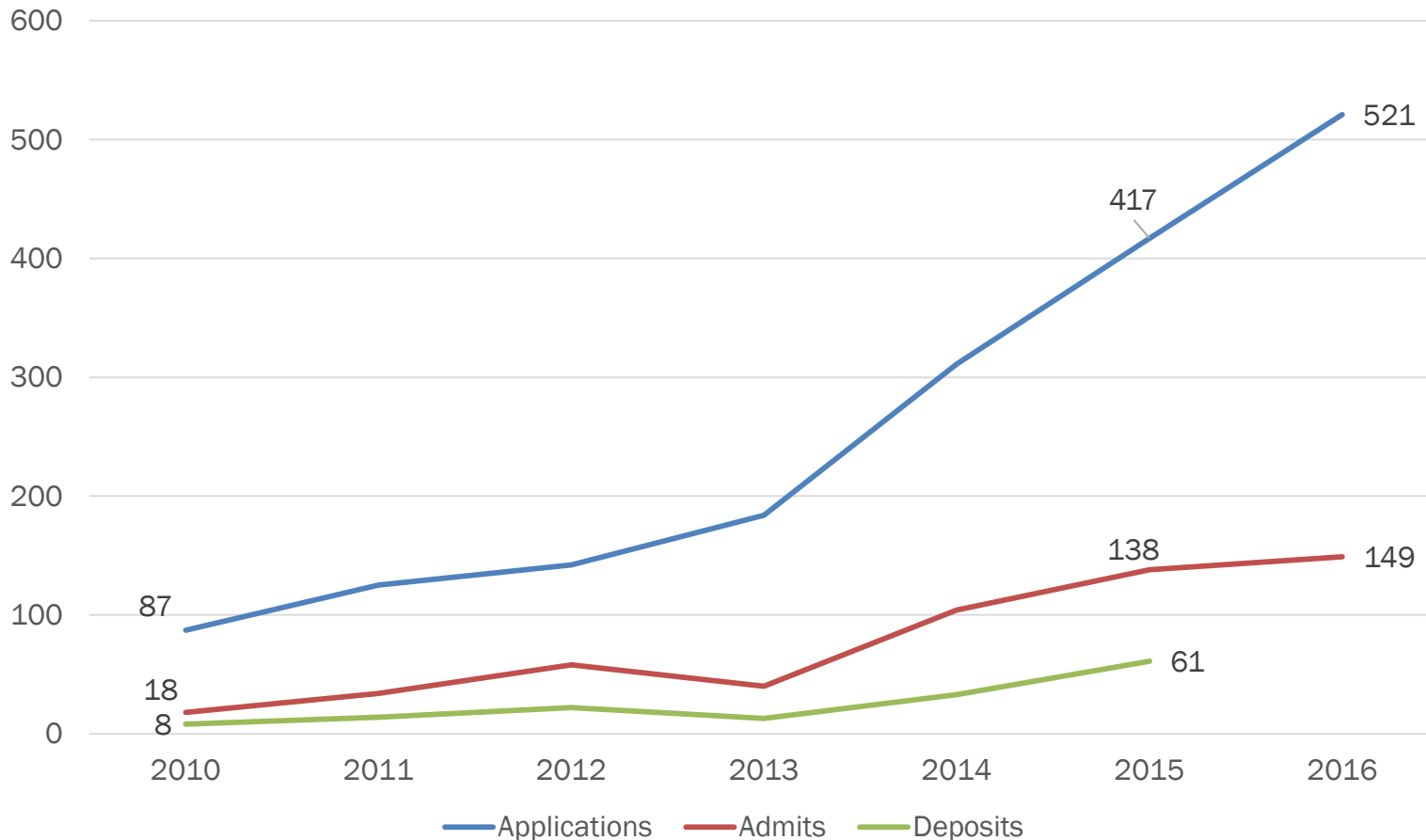
# UG Female and Male Admits and Deposits: 2004 - 2016



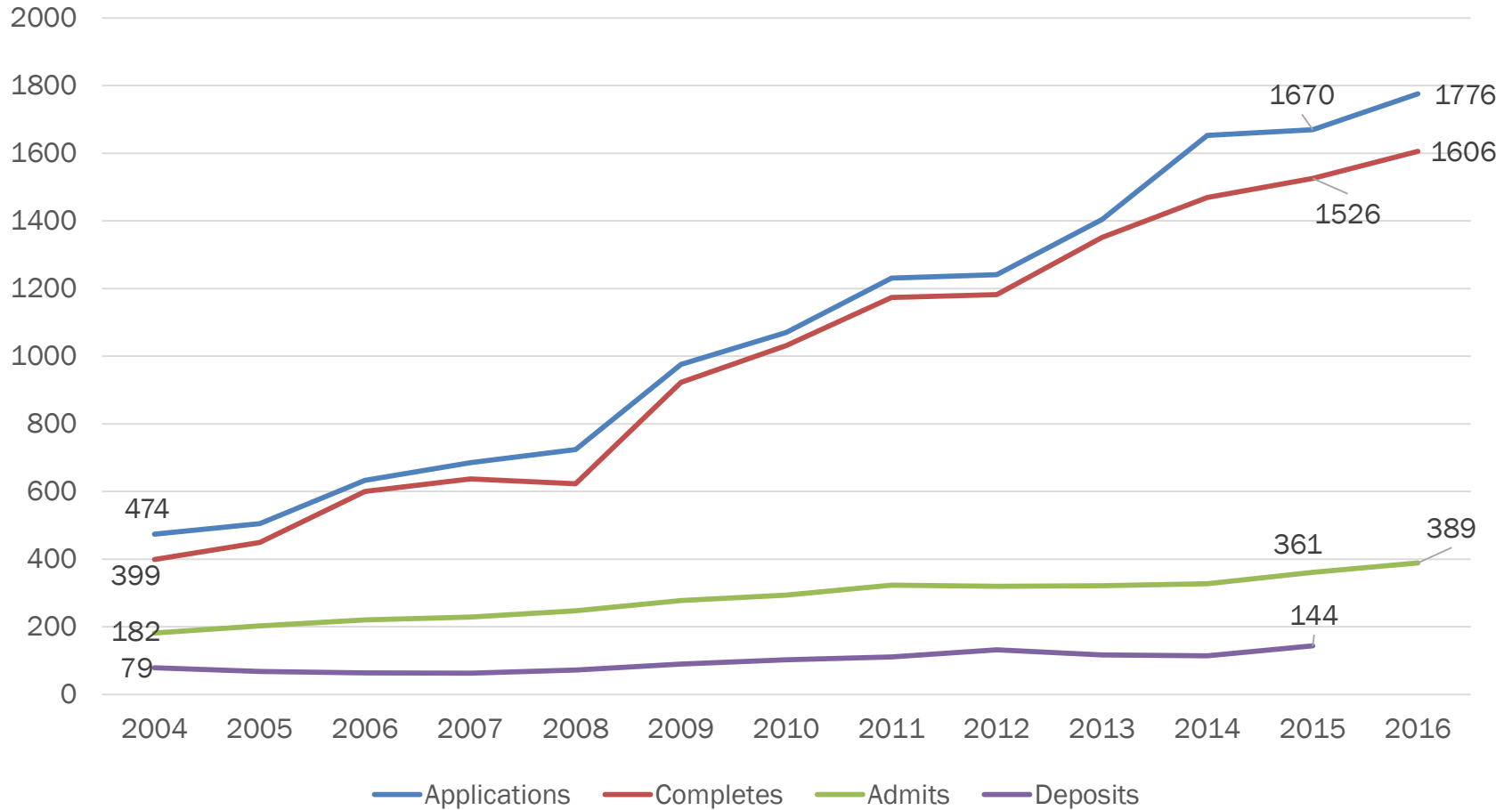
# UG Female Applications for Admission: 2004 - 2016



# UG Female Applications for Admission to Computer Science: 2010 - 2016

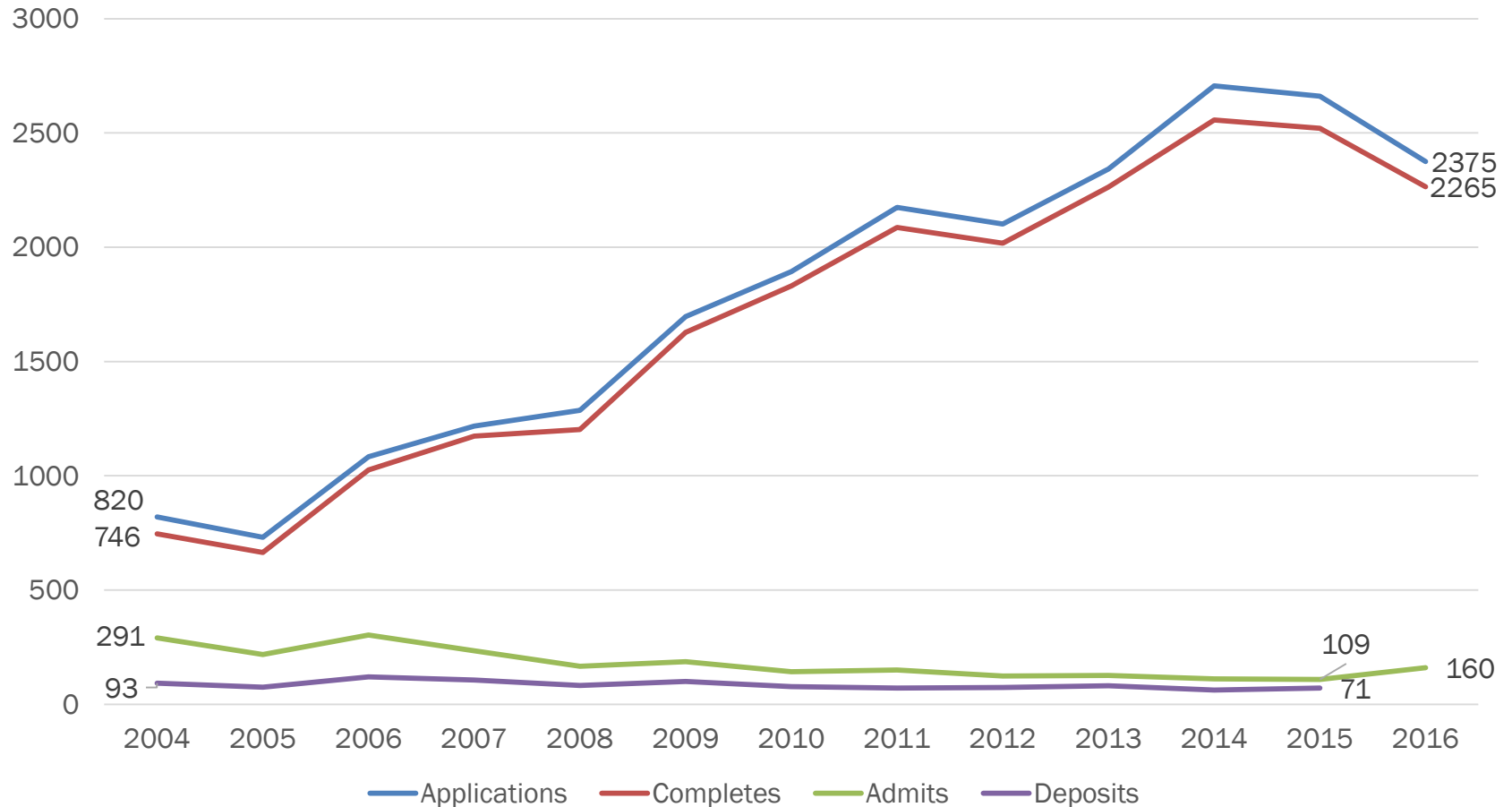


# Total UG URM Applications for Admission: 2004 - 2016





# Total UG International Applications: 2004 - 2016



# DPE Highlights April, 2016

# DPE Recent Highlights 2015-16

- CUES receives \$5 million gift from Robert F. Smith
- Sloan Fellowship funding renewed at \$1,200,000
  - 50% of Sloan Scholars Awarded NSF Graduate Research Fellowships (Cohorts 2012-2015)
  - Sloan Scholars graduation rate is 75.6% compared to 57.1% of URM students not in the Sloan program for cohorts 2004-2008
- LSAMP Scholars
  - 2 LSAMP Scholars awarded 2016 NSF Graduate Research Fellowships
  - 75% of LSAMP Scholars earn or enrolled in an advanced degree program
  - 95% of LSAMP Scholars have engaged in undergraduate research
  - 100% CU LSAMP REU Scholars who've graduated and have pursued a MEng/MS or PhD have remained in a STEM discipline

# DPE Recent Highlights 2015-16

- Ryan Scholars
  - 2015 Ryan Scholar retention rate in COE is 97% compared to 93% of URM students in COE
  - 100% of Ryan Scholars were absent from CASPAC Review for 2016 January
  - 34 slots for 2016 Summer

# Student Project Team Highlights

## April, 2016

# Student Project Teams 2015-16 Academic Year

23 Teams, ~1000 Student Participants

Competition, Service, and/or Client focused

Microcosm of student body and engineering design enterprises

Team Budget Proposals: \$850,000+

*Anticipate Need: 1/4 Internal, 1/4 Fundraising and 1/2 In Kind*

Internal Seed Funding: \$225,000

Current Cash Donations: \$160,000+

Follow us @CornellENGTeams  
[www.engineering.cornell.edu/teams](http://www.engineering.cornell.edu/teams)

# Student Project Team News



won 4<sup>th</sup> title over 30+ international teams at the 2015 AIChE Chem-E-Car Competition on November 8 in Salt Lake City.



won 2<sup>nd</sup> consecutive Greater New York Region ACM ICPC Contest earning an invitation to World's in Thailand.



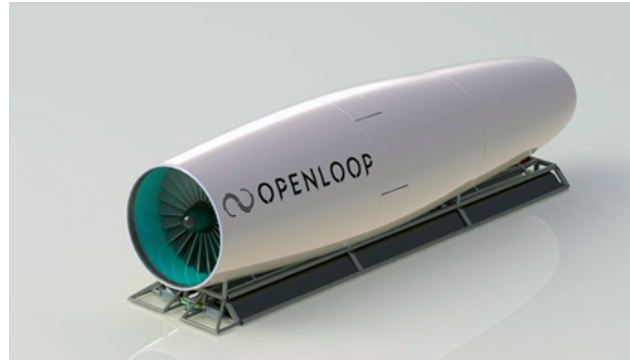
*CORNELL iGEM*

won 3 awards against 280+ teams on September 28 at the 2015 International Genetically Engineered Machines Jamboree in Boston.

***BEST ENVIRO track, in APPLIED DESIGN, in SUPPORTING ENTREPRENEURSHIP***

# Student Project Team News

## SpaceX Hyperloop Pod Competition



- “OpenLoop”, is one of eight teams selected to compete in the **Hyperloop Pod Competition**, to be held in June at SpaceX. Collaborators: Princeton, Michigan, Harvey Mudd, Northeastern and Memorial University of Newfoundland
- Project is the brainchild of entrepreneur Elon Musk and seeks to design components of a proposed high-speed transportation service linking Los Angeles and San Francisco in as little as 35 minutes.



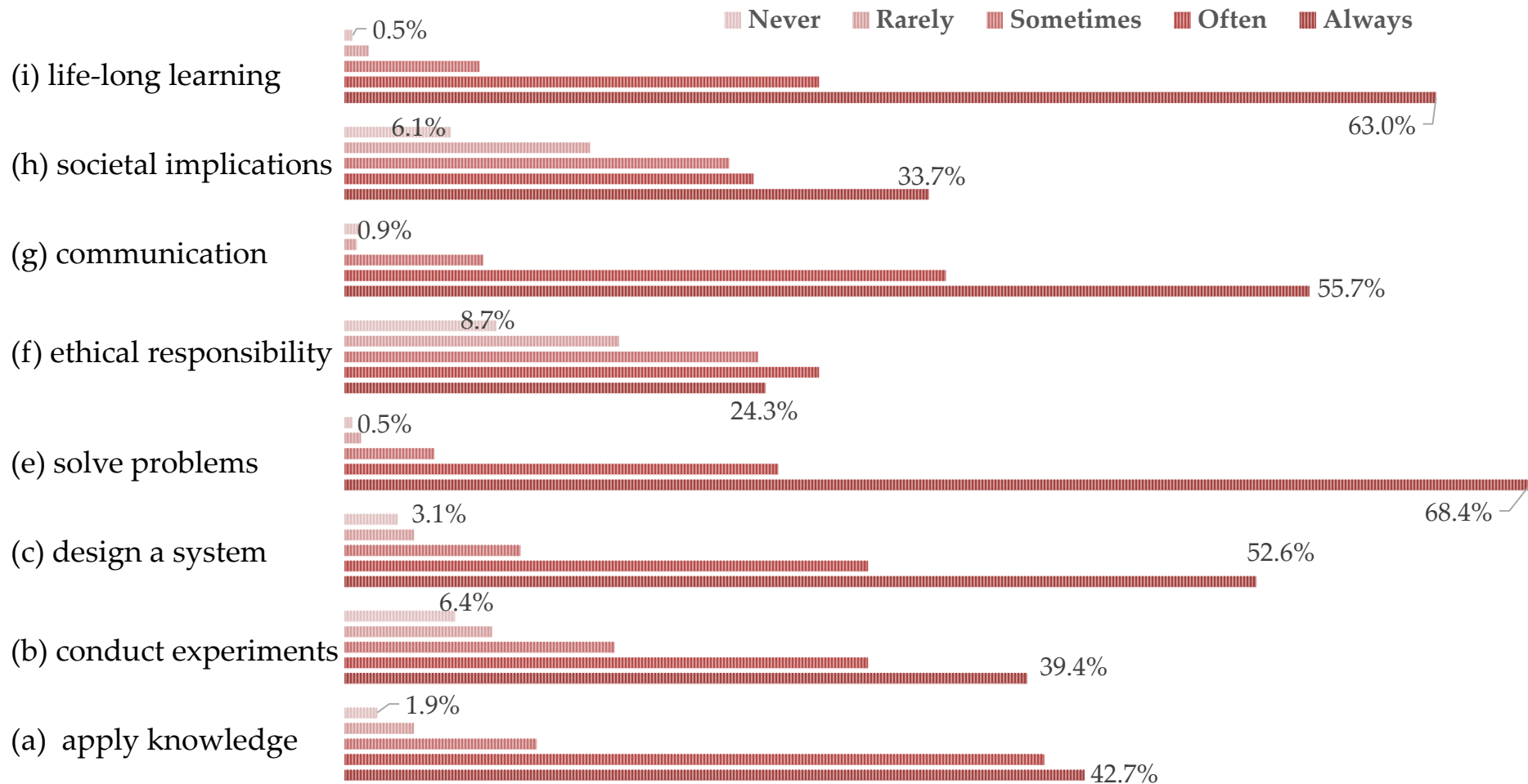
# Student Project Teams

## Student Outcomes (ABET)

Mid-semester surveys are used to capture student perceptions and according to ~500 respondents over 3 years the following results (% **sometimes or more achieved during team experience**).

- 94.1%** (a) an ability to apply knowledge of mathematics, science, and engineering
- 85.1%** (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- 92.9%** (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- GIVEN** (d) an ability to function on multidisciplinary teams
- 98.6%** (e) an ability to identify, formulate, and solve engineering problems
- 75.5%** (f) an understanding of professional and ethical responsibility
- 98.3%** (g) an ability to communicate effectively
- 79.7%** (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- 98.1%** (i) a recognition of the need for, and an ability to engage in life-long learning
- GIVEN** (j) a knowledge of contemporary issues
- GIVEN** (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

# Student Project Teams Student Outcomes (ABET)



# Engineering Co-op & Career Services Highlights April, 2016

# ECCS Post Graduation Report – 2015

## Post-Graduate Report – '15

Undergraduate 750 Graduated, 66% Response Rate

34% Grad School    60% Employed    3% Seeking Employ.    3% Other

MEng 694 Graduated, 99.4% Response Rate

4% Grad/Prof School    66% Employed    25% Seeking Employ.\*    5% Other

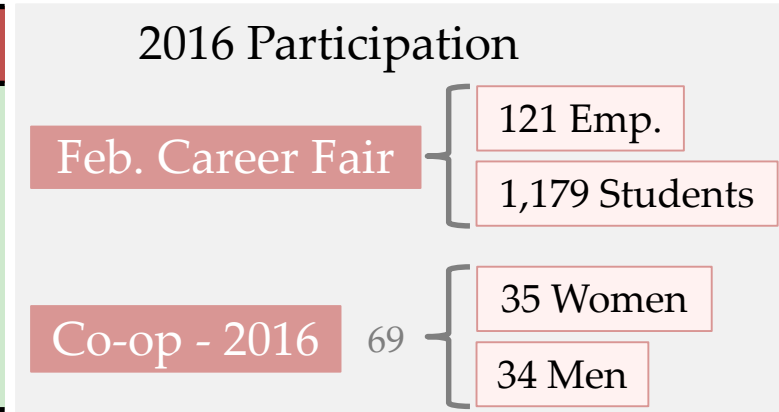
*\* 53 MEng listed as seeking employment selected "Have an offer, but still looking"*

## Employers Hiring 8+ Eng. Students All Degrees

Oracle	38	Amazon	16	Microsoft	12	PwC	8
Lockheed Martin	31	Epic	15	Accenture	11	Facebook	8
Google	17	Goldman Sachs	13	Workday	9	EY	8
Intel	16	Deloitte		LinkedIn	9	Citi	8

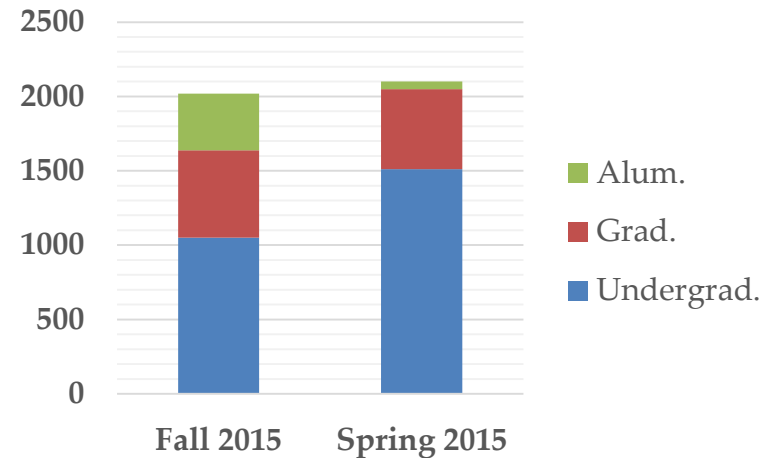
# Campus Impact and Office Services

	Fall 2015	Spring 2015	Total
<b>Resume Critiques</b> (w/ Student Staff)	348	219	567
<b>Mock Interviews</b> (w/ Student or Professional Staff)	63	104	167
<b>Appointments</b> (including phone)	704	724	1,428



**6,300+**  
Student Contacts (appointments,  
workshops, fairs)

Individual Student – Office Interaction



# College Facilities Update April, 2016



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

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

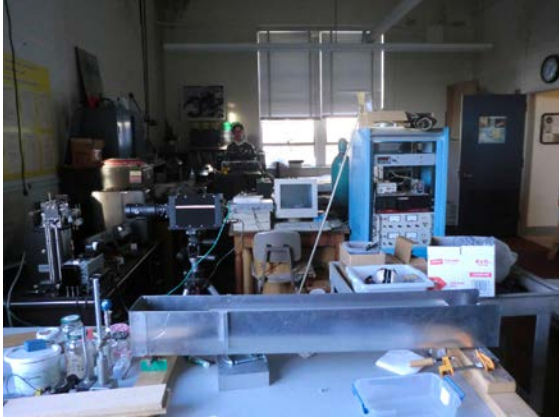
# Master Plan Status

- **BME Expansion for New Undergraduate Program**
  - University proposed existing spaces and moderate additions
  - Weill, Comstock and Plant Science possibilities
  - Engineering and other impacted colleges reviewing proposal
- **Major Renovations on Quad**
  - Kimball Hall Wet Labs achieved LEED Gold
  - Upson Hall Full Renovation–Upper floors readied for Fall
- **Research & Department Program Projects**
  - PARADIM Materials by Design in Duffield Hall
  - Faculty Research Labs
  - CBE Unit Operations Lab
- **Facility Master Plan Update Starting**
  - To inform 2017 Capital Planning
  - Focus: Hollister, CBE labs, and Rhodes rearrangements



# Major Renovations on Quad

- **Kimball Hall** –BME / multi-department wet labs



- **Upson Hall** – hybrid labs, project teams, MAE Consolidation

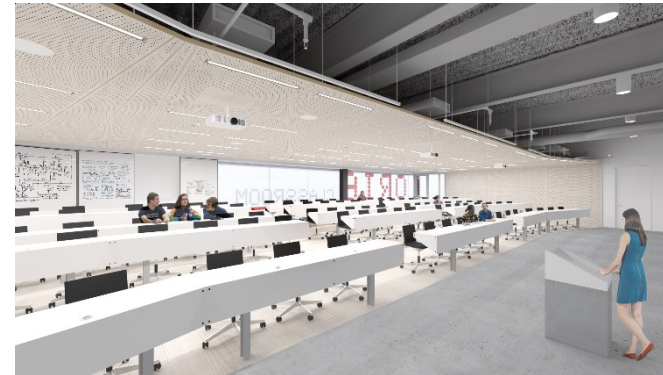


# Selected Others

- **Snee & Bard** –Geochemistry cleanroom & faculty labs done.
- **Olin** – Unit Operations lab renovated and expanded.



- **Duffield** –Faculty MBE labs in construction.
- **Relocating ECE/CSL and ORIE Computer Classroom in Rhodes:**



# **College of Engineering Cornell Now Campaign Update**

**April, 2016**

# Campaign Progress

Cornell Now Goal	\$185,000,000
Cornell Now Total	\$293,500,000
Attainment	158.7%

*\* Cornell Now Campaign ended 12/31/15*

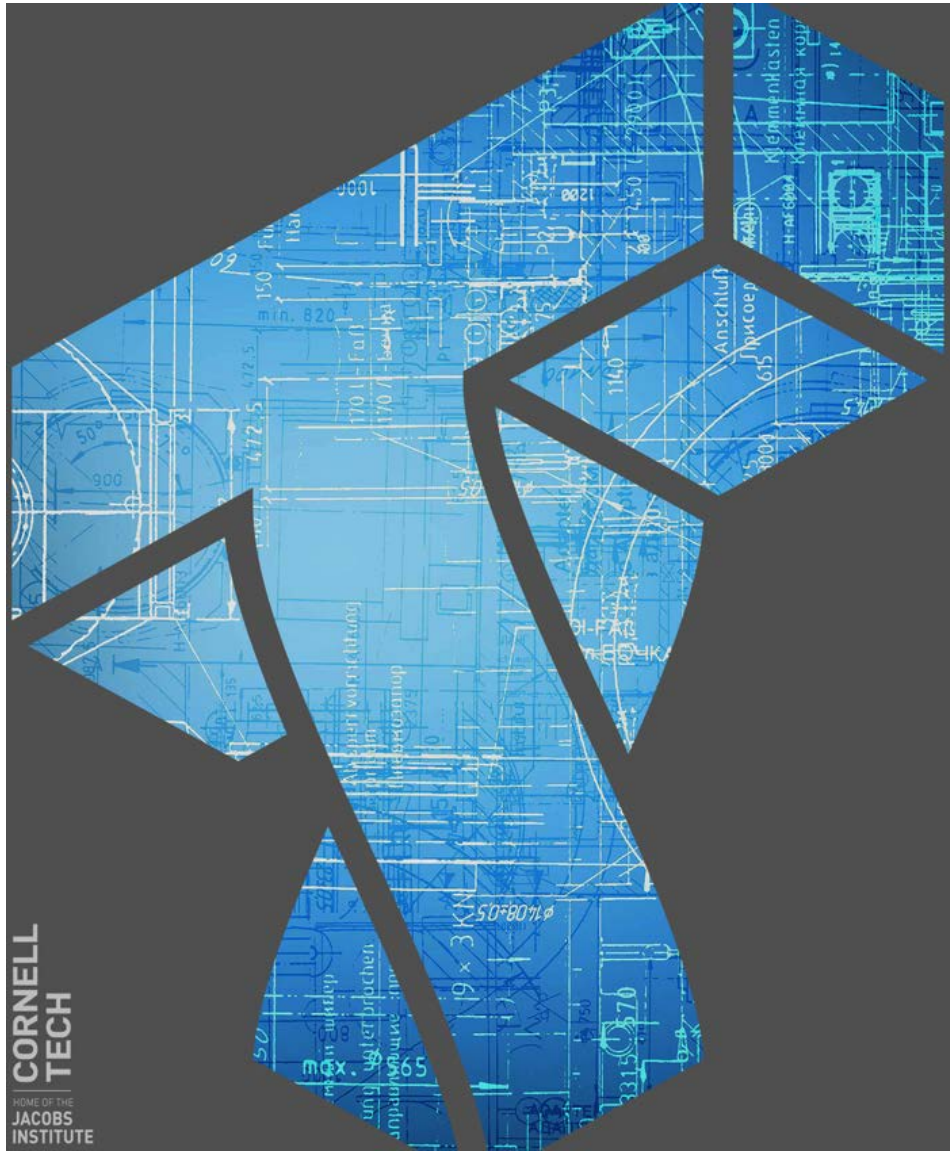
Fiscal Year 2016 NG&C Goal	\$ 50,000,000
Fiscal Year 2016 NG&C Total	\$ 36,017,000

*As of 3/4/16*

Fiscal Year 2016 Annual Fund Goal	\$ 2,300,000
Fiscal Year 2016 Annual Fund Total	\$ 1,300,337

ECC Active Member Participation	25 donors out of
<i>(based on FY '16)</i>	55 active members

*As of 3/4/16*



## Cornell Tech Update April, 2016

# Cornell Tech Faculty

- 22 Faculty Members
  - 2 Professors of Practice
  - 7 Multi-year visiting tenure track (5 Ithaca, 2 Haifa)
  - 13 Permanent tenure track (8 tenured, 5 untenured)
- Two additional faculty hired last year joining Fall 2016
- Plan to hire about 5 additional this coming year
- About 1/3 faculty are in Jacobs Technion-Cornell Institute
  - Jacobs faculty are mix of Cornell and Technion

# Cornell Tech Students

- About 30 supported PhD students (some in Ithaca)
- About 130 Masters students, approximately evenly split between 3 programs
  - Cornell CS MEng
  - Johnson Tech MBA
  - Technion-Cornell dual MS in Information Systems
  - Concentrations in Connective Media, Health Tech

# Roosevelt Island Campus – Summer 2017





# Roosevelt Island Site – January 15, 2016



# Thank you!

**Lance R. Collins**  
Dean of Engineering

**April 7-8, 2016**