

# CornellEngineering Update

Lance R. Collins  
Dean of Engineering

March 11-12, 2019



# Agenda

- General updates
  - College Leadership Updates
  - New Faculty
  - Major Faculty Awards
  - Research and Graduate Studies Highlights
  - Diversity Highlights
  - Engineering Career Center Highlights
- Facilities Update
- Fiscal Year '19 Giving Update

# College Leadership and Faculty Updates March 2019



# Yong Joo, Associate Dean of Master of Engineering Programs



**Yong Joo**

Associate Dean of  
Masters of Engineering Programs

- Joined Cornell in 2001.
- BP Amoco/H. Laurance Fuller Professor, Robert Frederick Smith School of Chemical and Biomolecular Engineering
- Selected Awards and Honors
  - National Science Foundation CAREER Award
  - DuPont Young Professor Award
  - Excellence in Teaching Award, College of Engineering
  - Fellow, American Institute of Chemical Engineers (AIChE)
- Degrees received:
  - M.S. and Ph.D., in Chemical Engineering, from Stanford University, 1993
  - B.S., Seoul National University, Korea, 1989
- Research focuses on the integration of molecular details into a macroscopic level in nanomaterials processing.

# New Faculty

(Arrivals Spring 2019)



*Patrick Fulton*  
*Asst. Professor, EAS*



*Atieh Moridi*  
*Asst. Professor, MAE*



*Julia Dshemuchadse*  
*Asst. Professor, MSE*

# Major Faculty Awards (S'19)

- **National Academy of Engineering**
  - Joseph Halpern (CS)
- **IEEE John von Neumann Medal**
  - Eva Tardos (CS, ORIE)
- **2018 INFORMS Wagner Prize**
  - Shane Henderson (ORIE)
  - David Shmoys (ORIE)
- **Herbert Thomas Prize, Geological Society of Chile**
  - Suzanne Kay (EAS)
- **Stephen H. Weiss Presidential Fellow**
  - Dexter Kozen (CS)

# Major Faculty Awards (S'19)

- **Fellow, American Academy of Microbiology**
  - Matt DeLisa (CBE)
- **Fellow, Association for Computing Machinery**
  - Lillian Lee (CS)
- **2018 MacArthur Foundation Fellowship**
  - Deborah Estrin (Cornell Tech)
- **2018 Fellow, American Association for the Advancement of Science**
  - Ronald Brachman (Jacobs Technion-Cornell Institute)
- **2018 Provost Research Innovation Award**
  - Natalie Mahowald (EAS)

# Major Faculty Awards (S'19)

- **National Science Foundation CAREER Award**
  - Christina Delimitrou (ECE)
  - Sid Banerjee (ORIE)
- **National Science Foundation Early Career Development Award**
  - Jayadev Acharya (ECE)
- **2019 PMSE Young Investigator, American Chemical Society**
  - Zhiting Tian (MAE)
- **MIT Technology Review's 35 Innovators Under 35 in China**
  - Zhiting Tian (MAE)



# Research and Graduate Studies Highlights Spring 2019



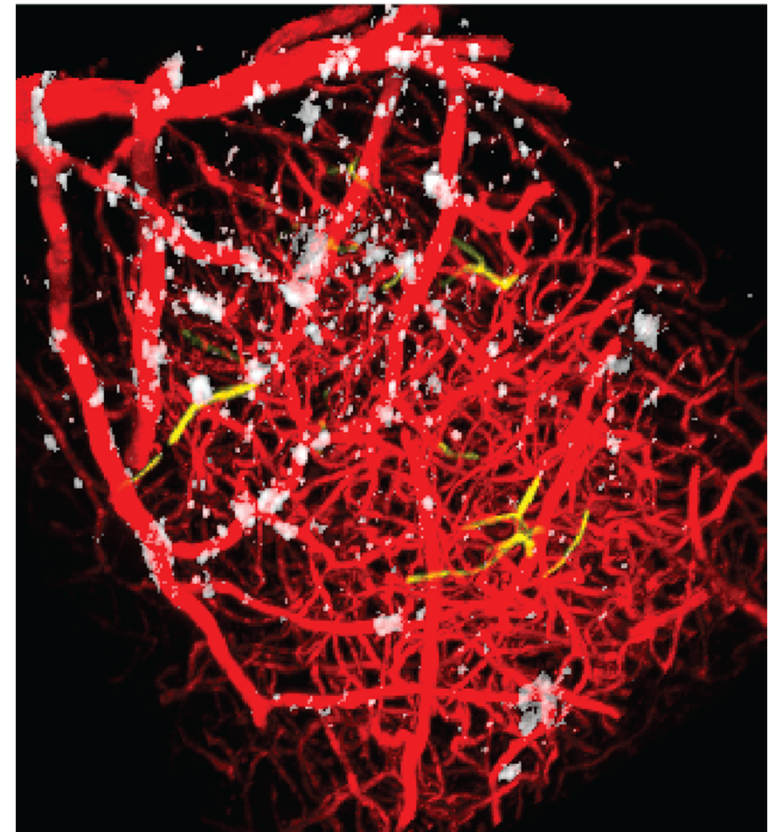
# Research Highlight

**Schaffer/Nishimura Lab uncovers cause and consequence of brain blood flow reductions in Alzheimer's disease**

Using advanced optical imaging tools, they found that a small fraction of capillaries were plugged by a white blood cell in the brain of mice that get Alzheimer's disease. When they blocked white blood cell adhesion, brain blood flow increased and this led to a rapid improvement in performance on memory tasks.

This research was published in *Nature Neuroscience* in 2019.

Chris B. Schaffer & Nozomi Nishimura  
Associate Professors, Biomedical Engineering



**Multiphoton microscopy shows blood vessels (red), plaques (white) and plugged capillaries (yellow).**

# Research Highlight

## Lt. governor returns to proclaim CHESSE upgrade complete

Fourteen months after announcing a \$15m grant from New York State, Lt. Gov. Kathy Hochul returned to Cornell to announce the completion of the upgraded CHESSE facility.

The new “CHESSE-U” facility has enhanced X-Ray capabilities keeping it a leading synchrotron in the US.

This builds off an additional \$8M in funding in the 2019 defense appropriations bill allocated to CHESSE

Joel Brock, Given Foundation Professor of Engineering, Applied and Engineering Physics

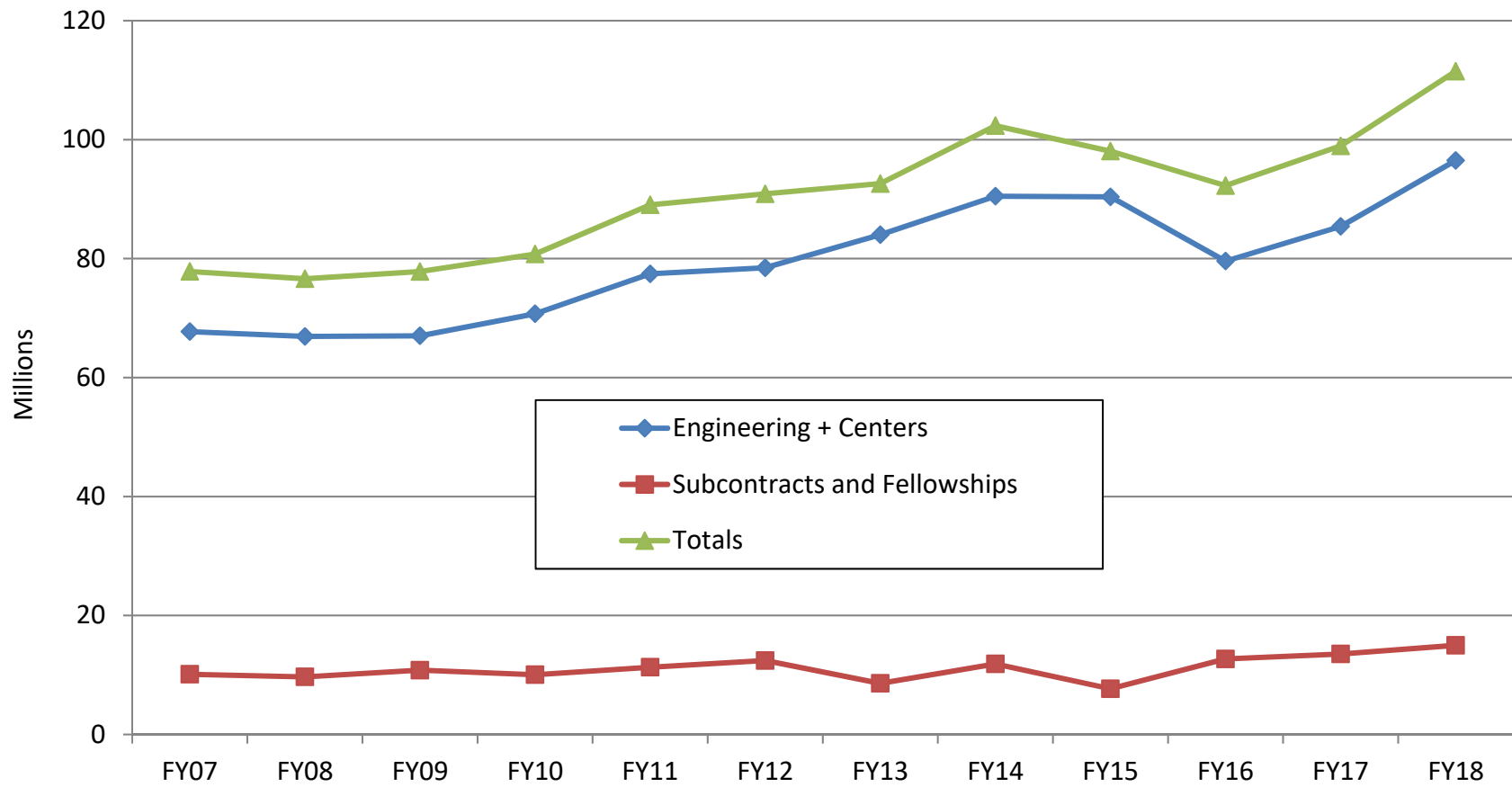


CHESSE Director Joel Brock (AEP), left, takes Lt. Gov. Kathy Hochul on a tour of the High Energy Synchrotron Source

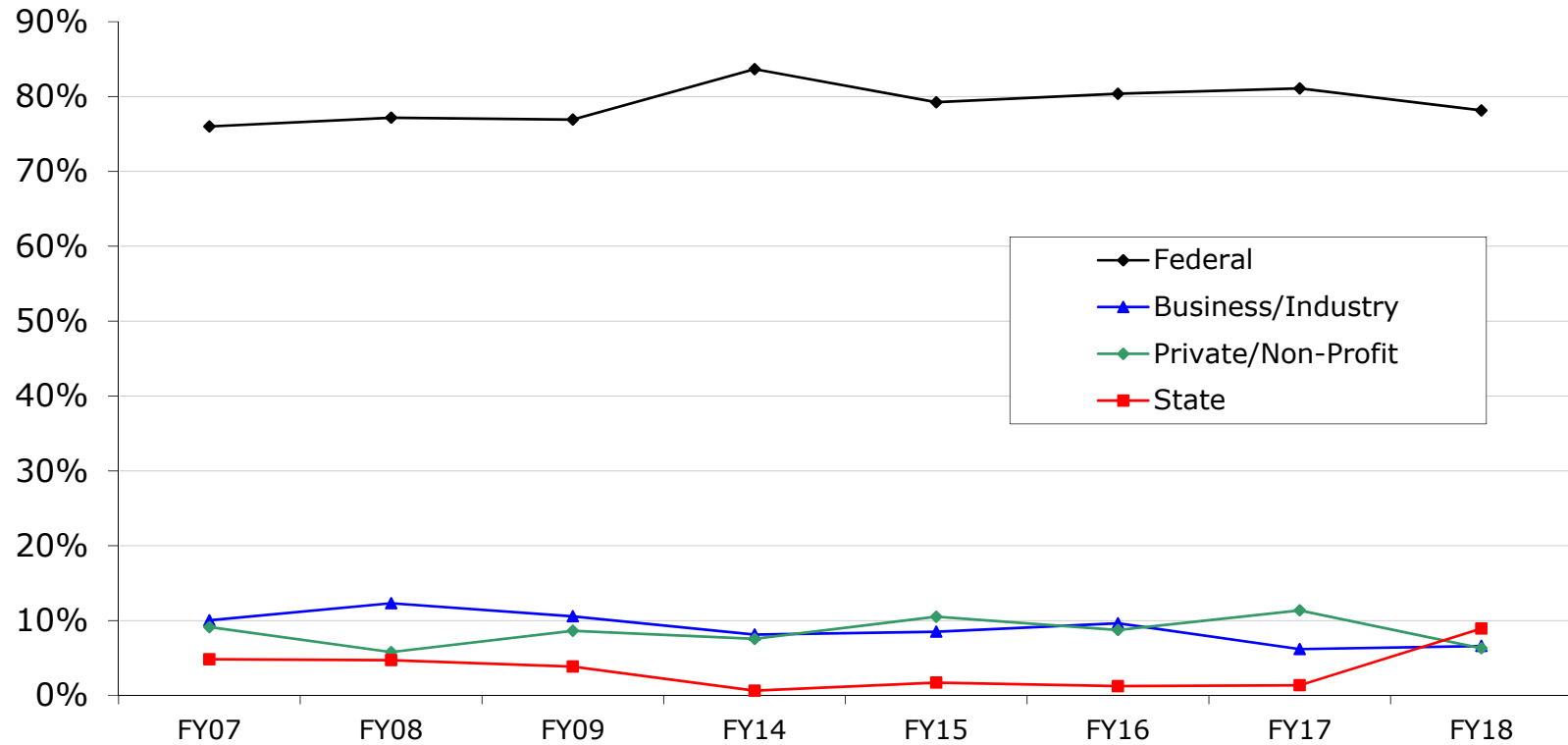
<http://news.cornell.edu/stories/2019/01/lt-governor-returns-proclaim-chess-upgrade-complete>

<http://news.cornell.edu/stories/2018/10/defense-spending-bill-extends-air-force-research-partnership-chess>

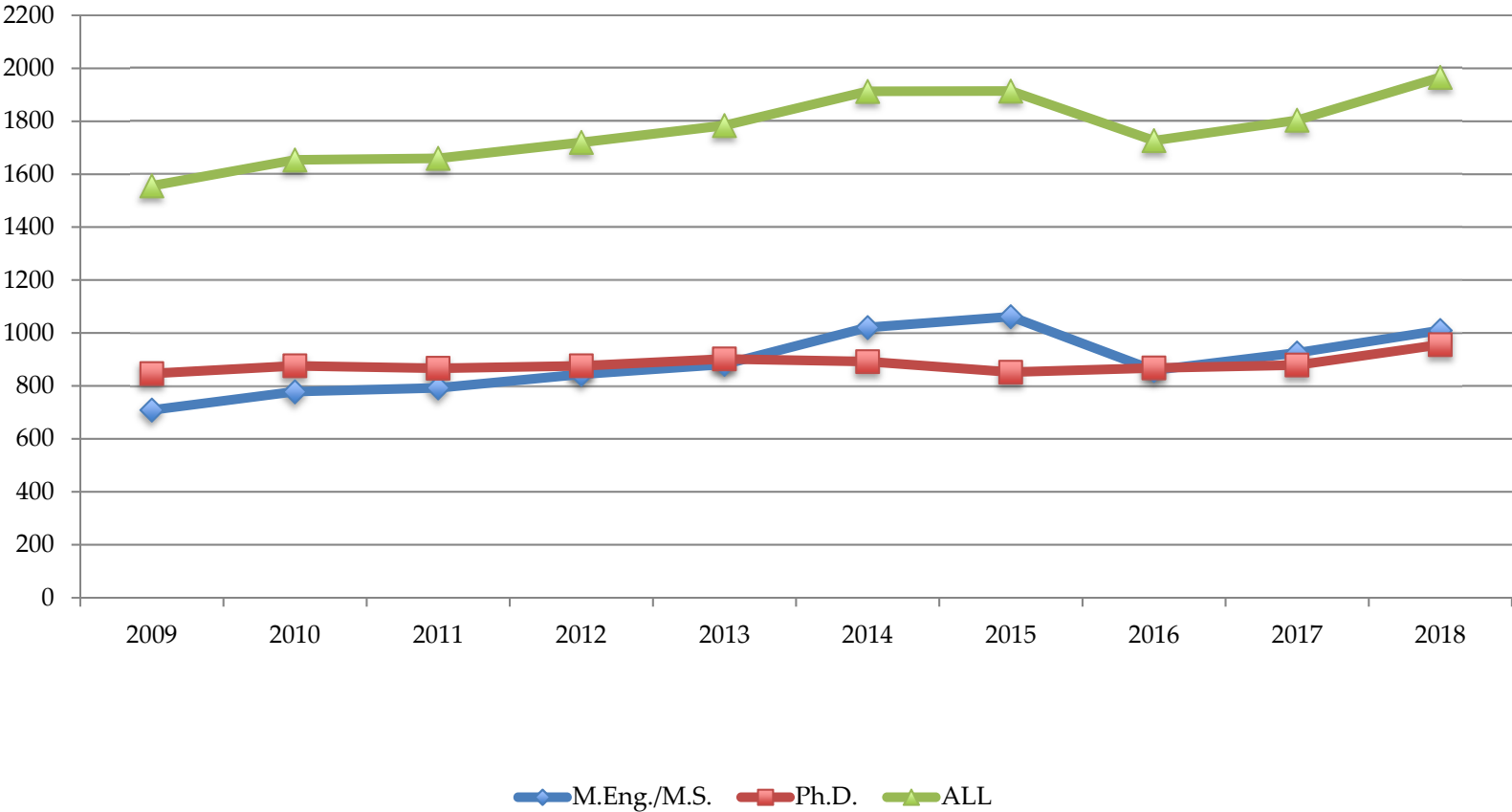
# Research Expenditures



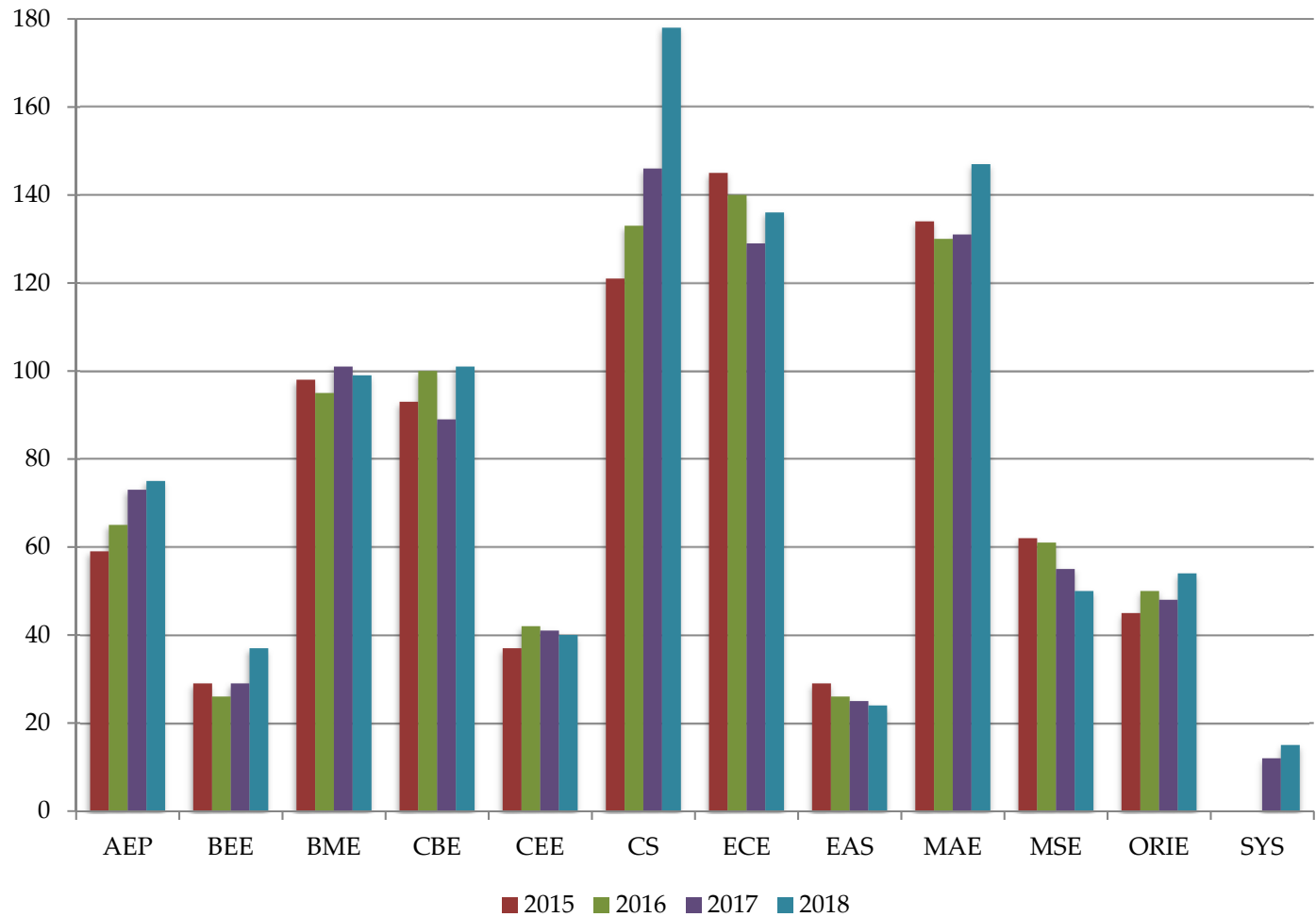
# Percent Distribution of Research Expenditures



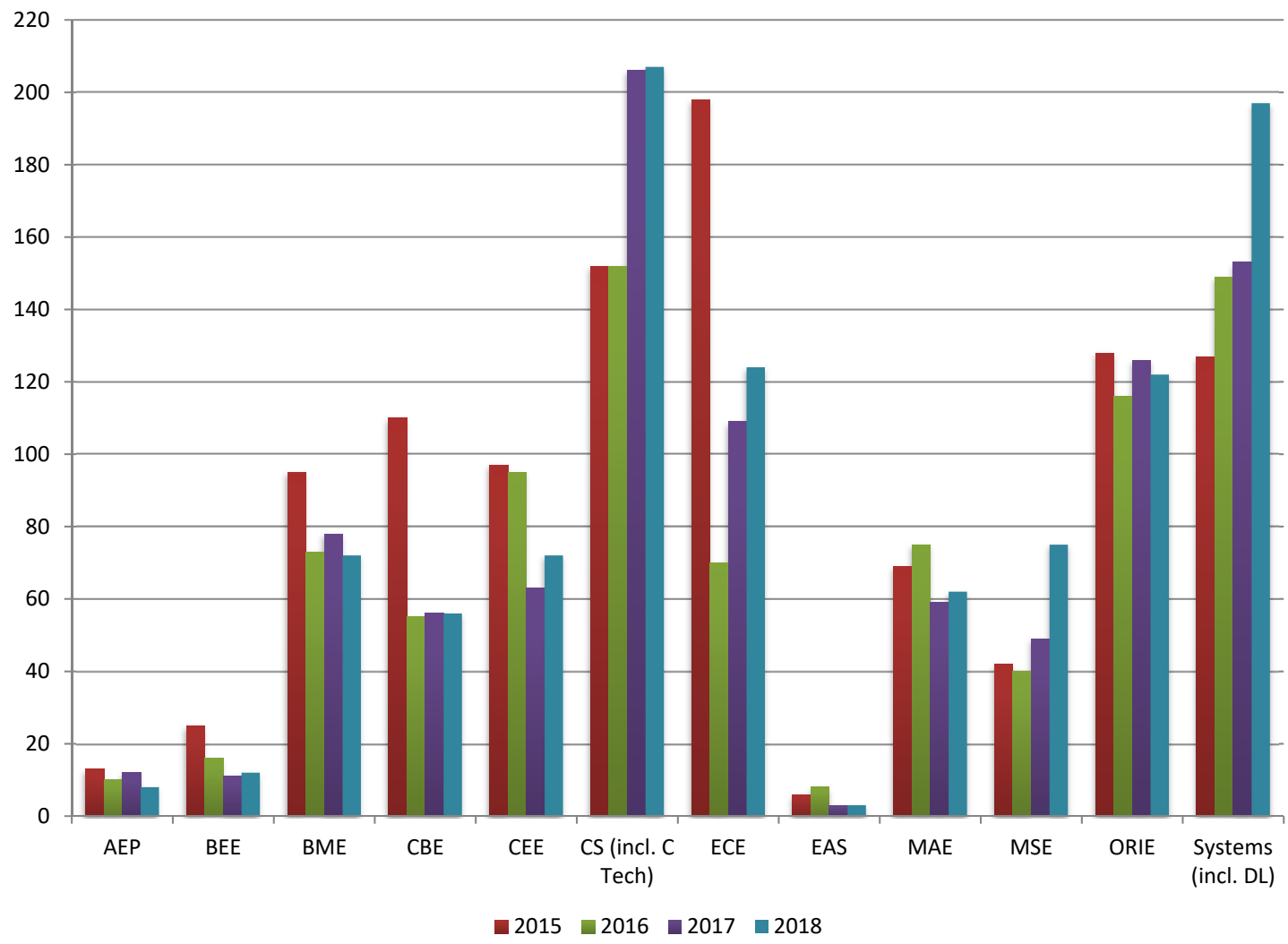
# Graduate Student Enrollment



# Ph.D. Enrollment by Field

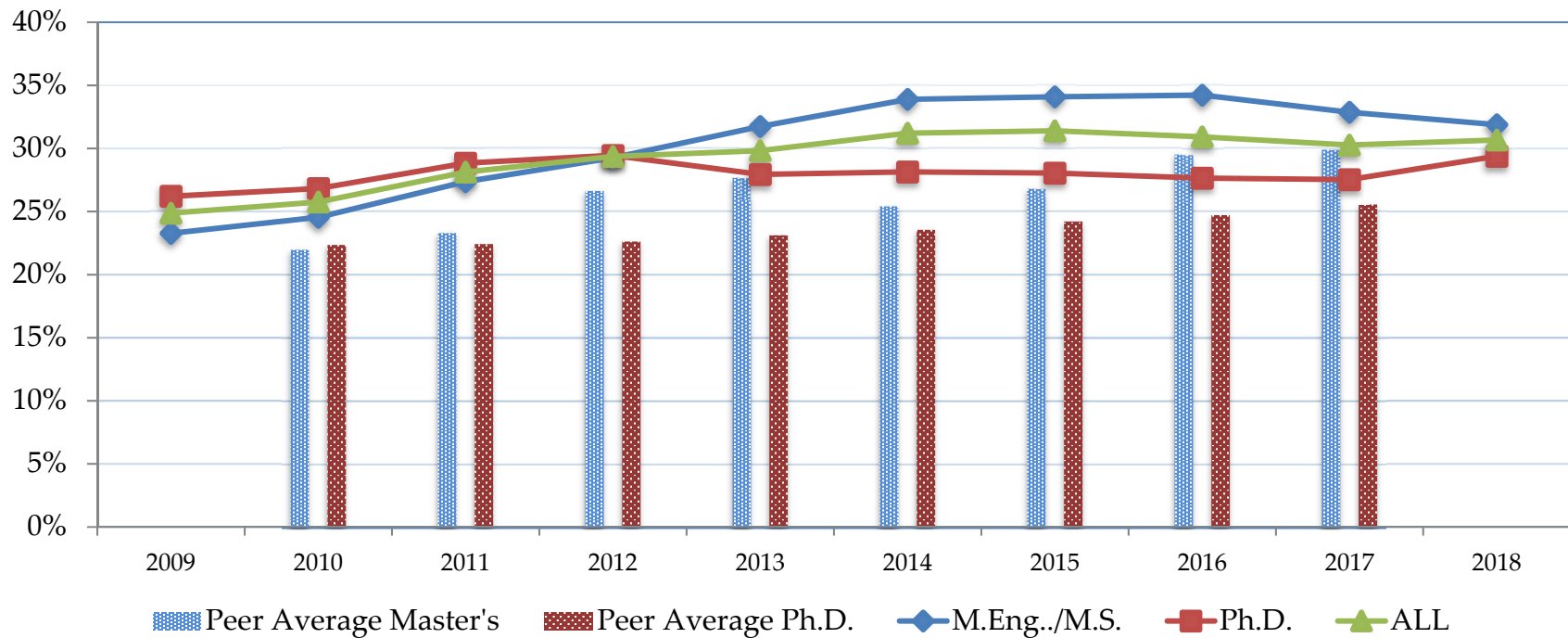


# M.Eng./M.S. Enrollment by Field



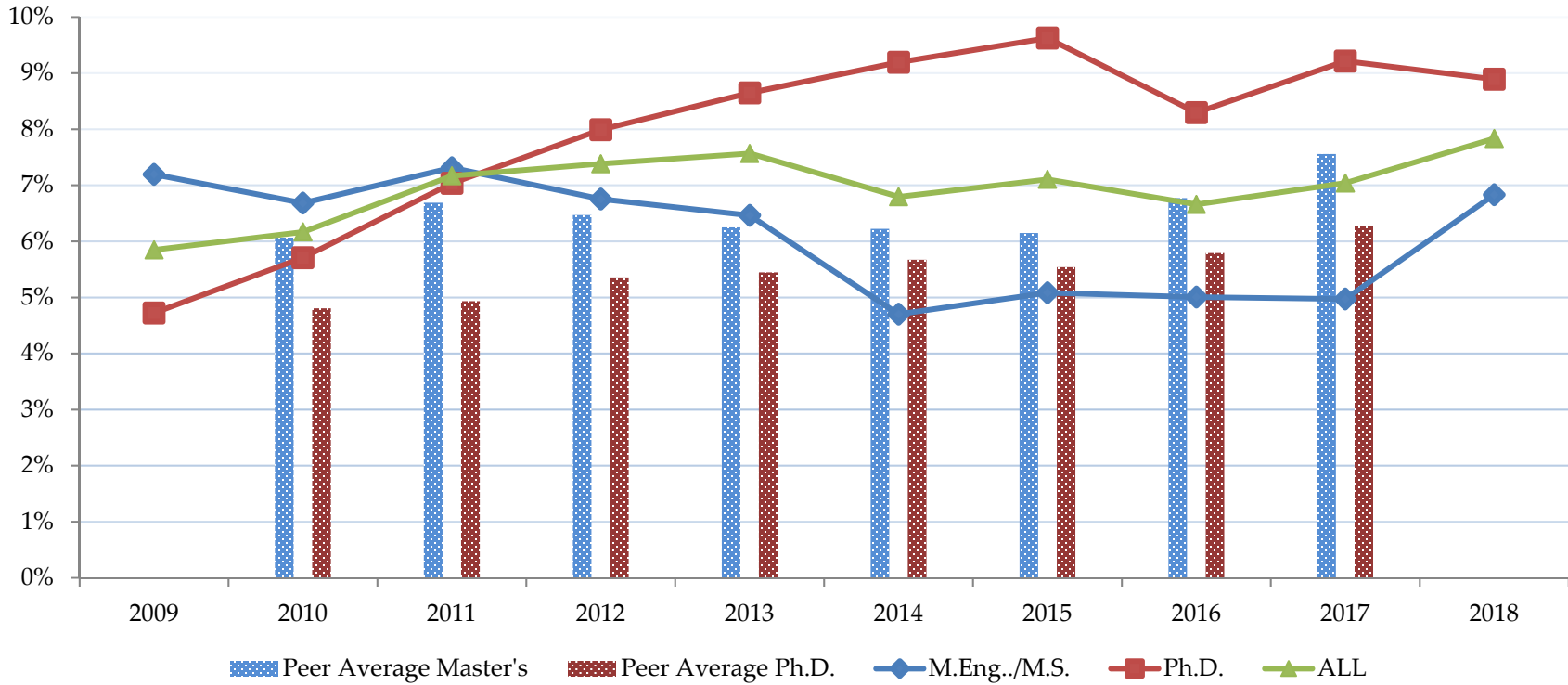


# Graduate Student Enrollment Women



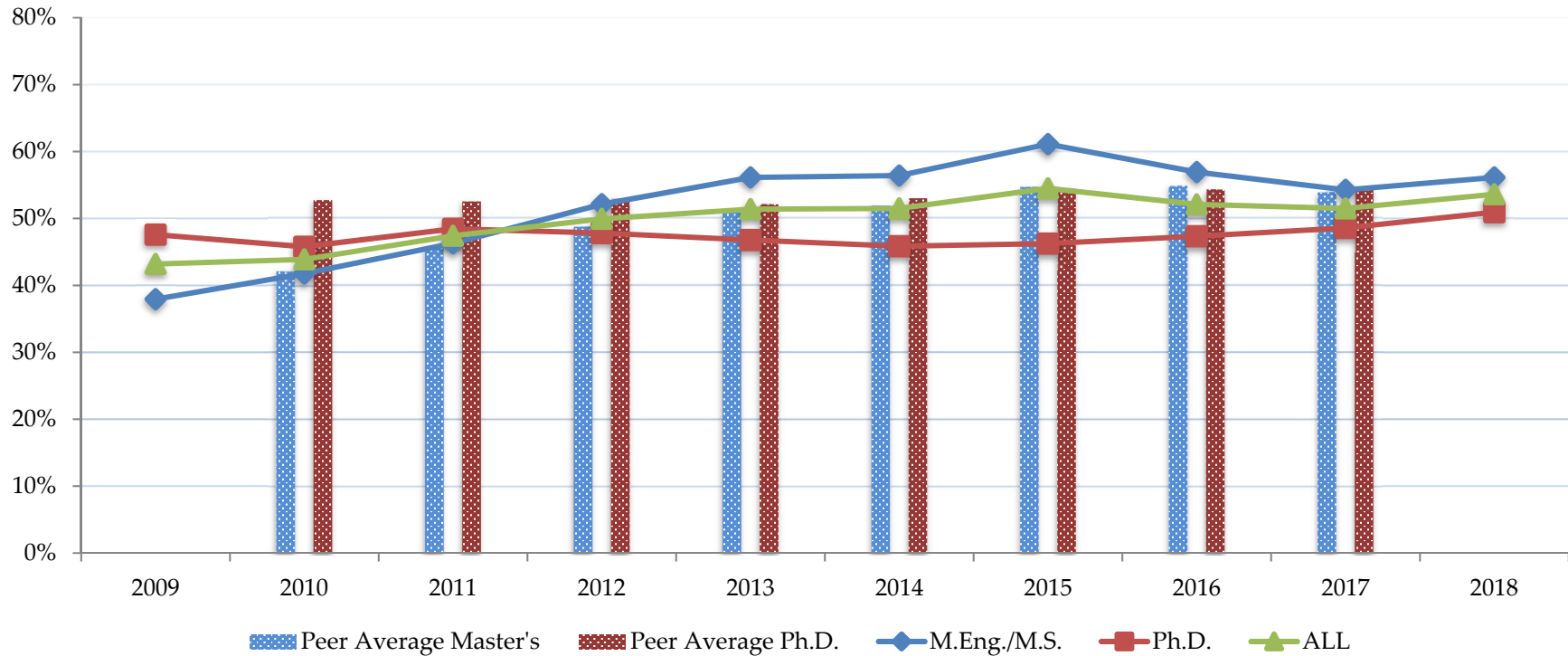
\* Peers: Carnegie, Columbia, Georgia Tech, MIT, Princeton, Purdue, Stanford, UT Austin, Berkeley, UI-Urbana Champaign, Michigan  
 Source for peer data: ASEE data mining tool

# Graduate Student Enrollment Under-represented 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

# Diversity Highlights

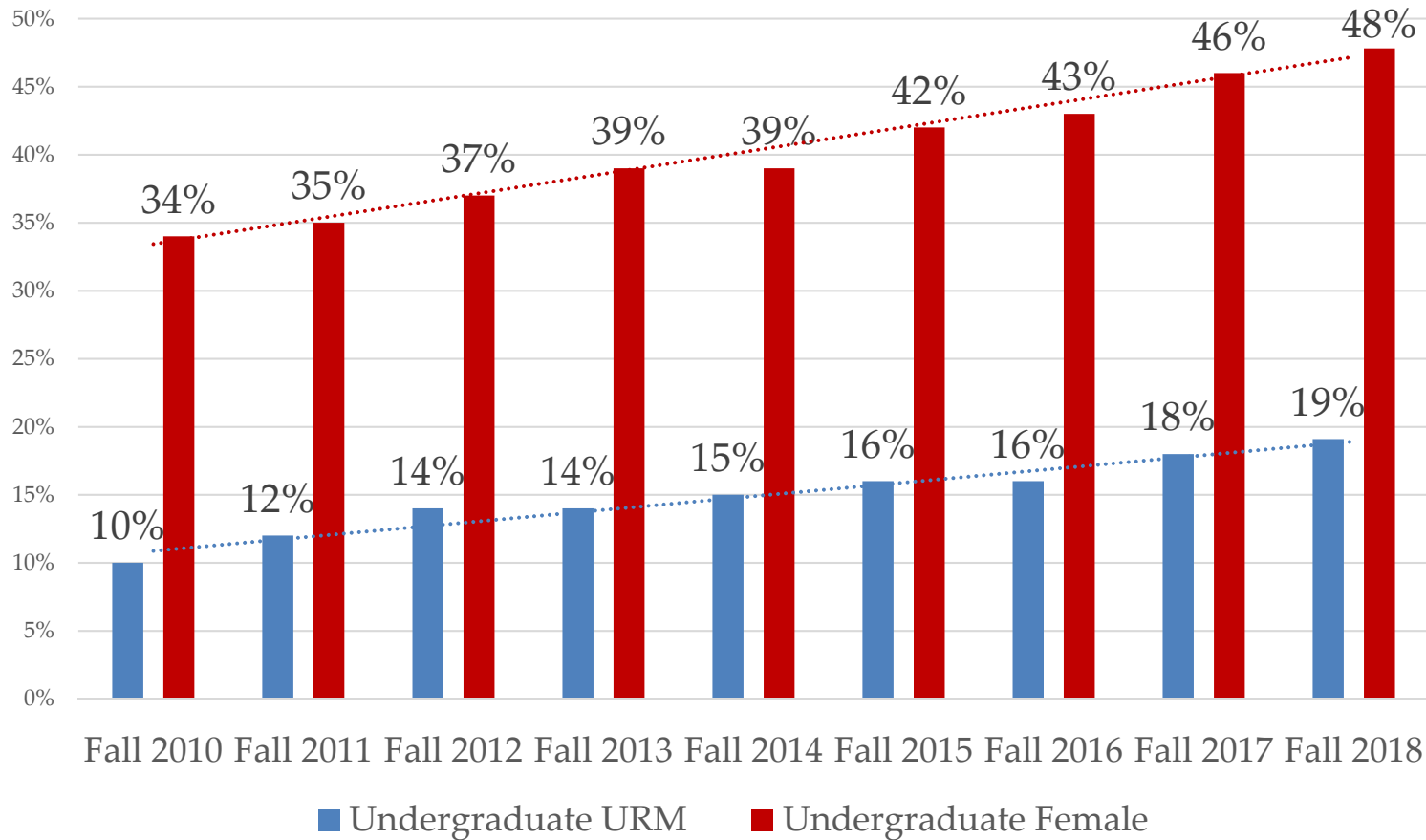
## March 2019



# Diversity in Engineering



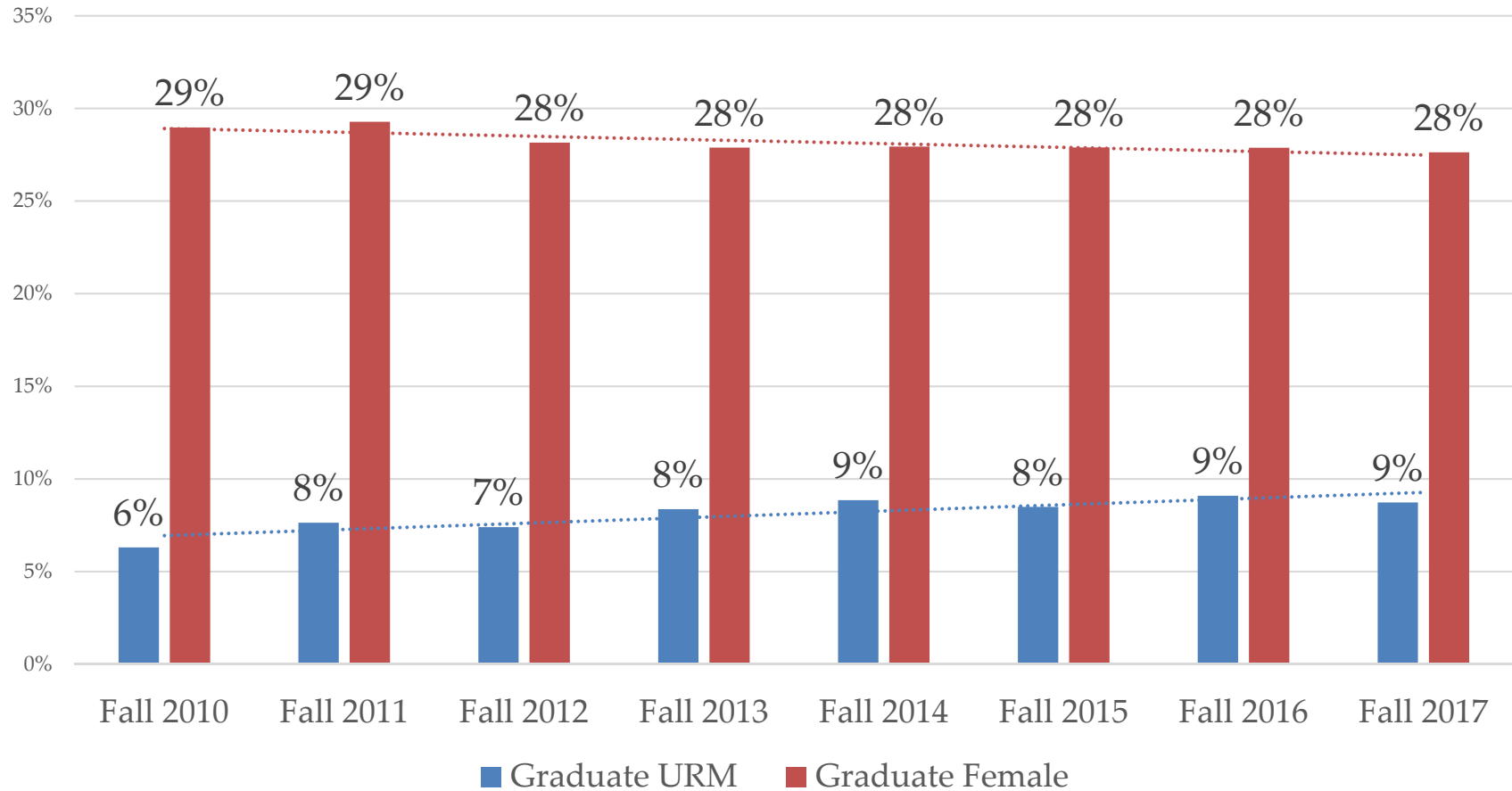
# Undergraduate Enrollment



National (Fall 2017): Female 22.8%, URM 17.2%



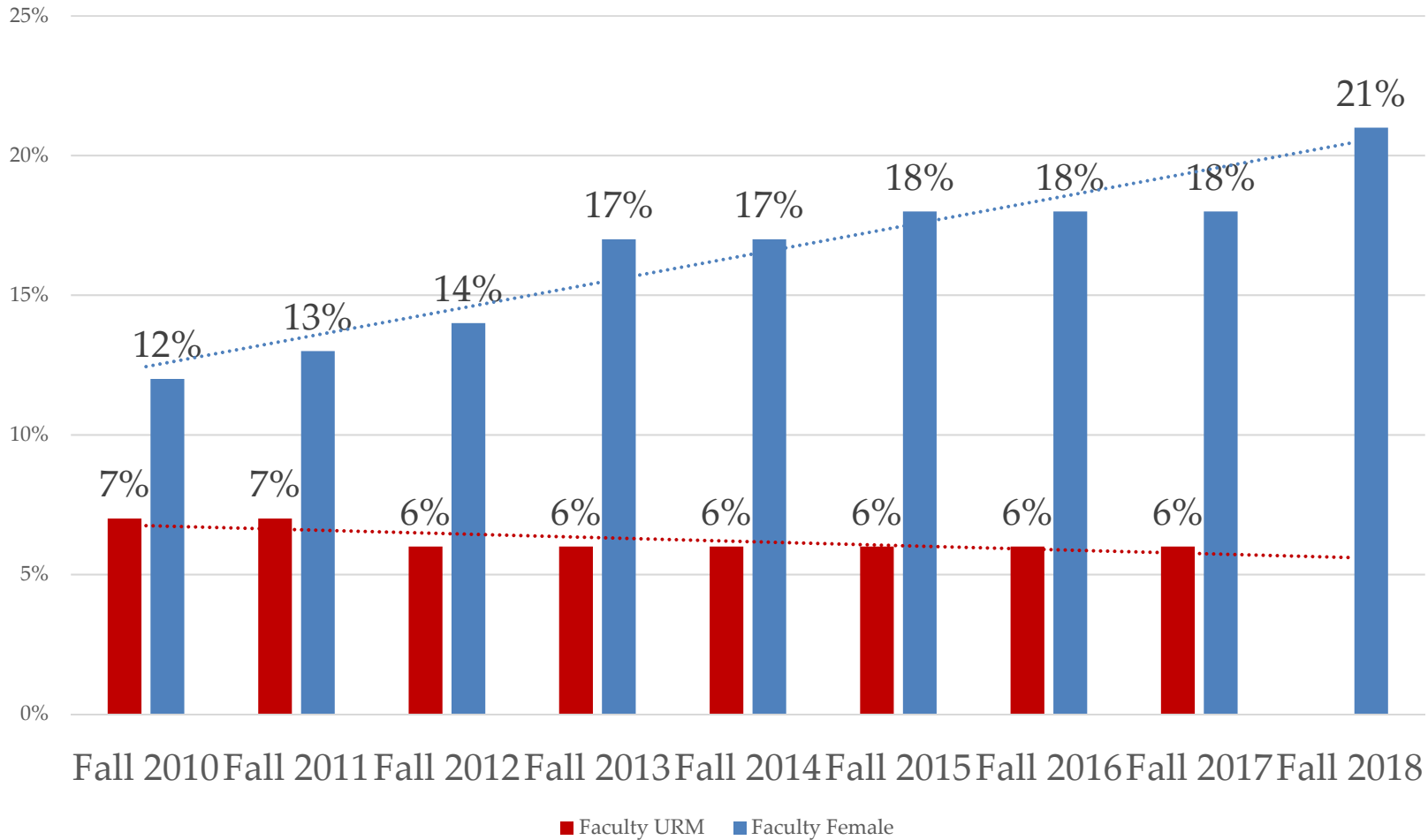
# Ph.D. Enrollment



National (Fall 2017): Female 25.6%, URM 5.1%



# Faculty Demographics



National (Fall 2017): Female 16.9%, URM 6.8%





# Engineering Faculty Hiring, 2017-18

**50%**

**Women Faculty Hires**

**21%**

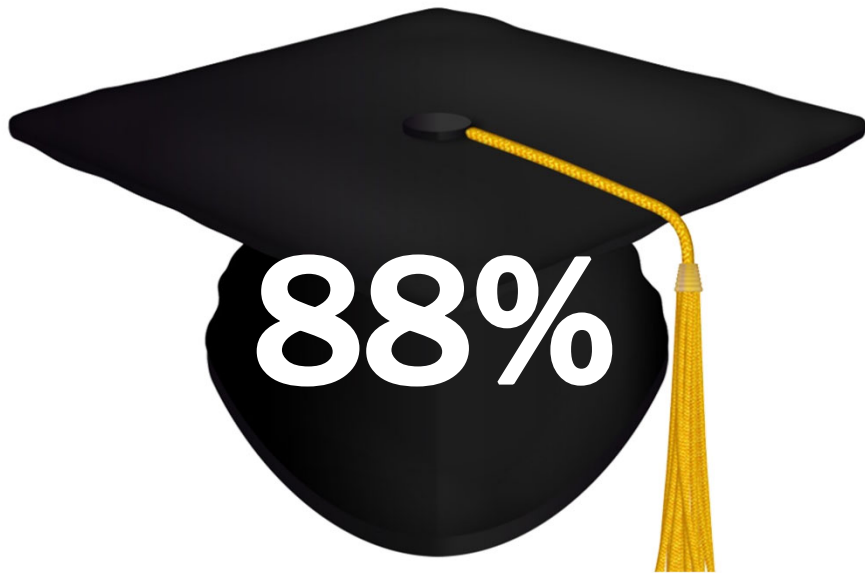
**Women Faculty**

**20%**

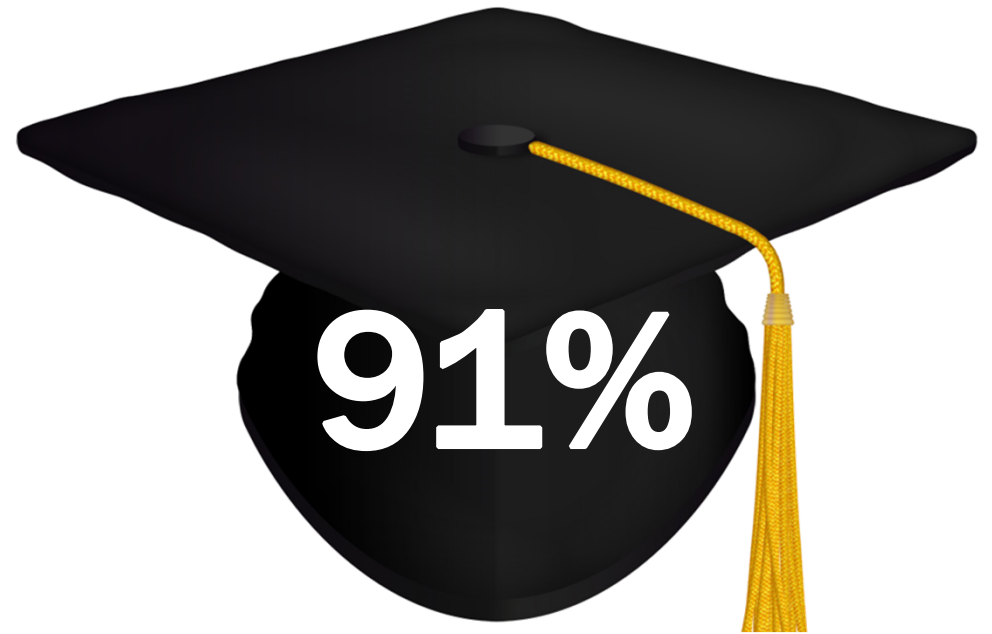
**Women Faculty Hiring Goal: 20% by 2020**

# 5-Year Engineering Graduation Rate

## Undergraduate URM Cohort Admitted Fall 2012



*Graduated from Engineering*



*Graduated from Cornell*



# Admissions and Diversity Class of 2022

**Slide 27**

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**CAP8**

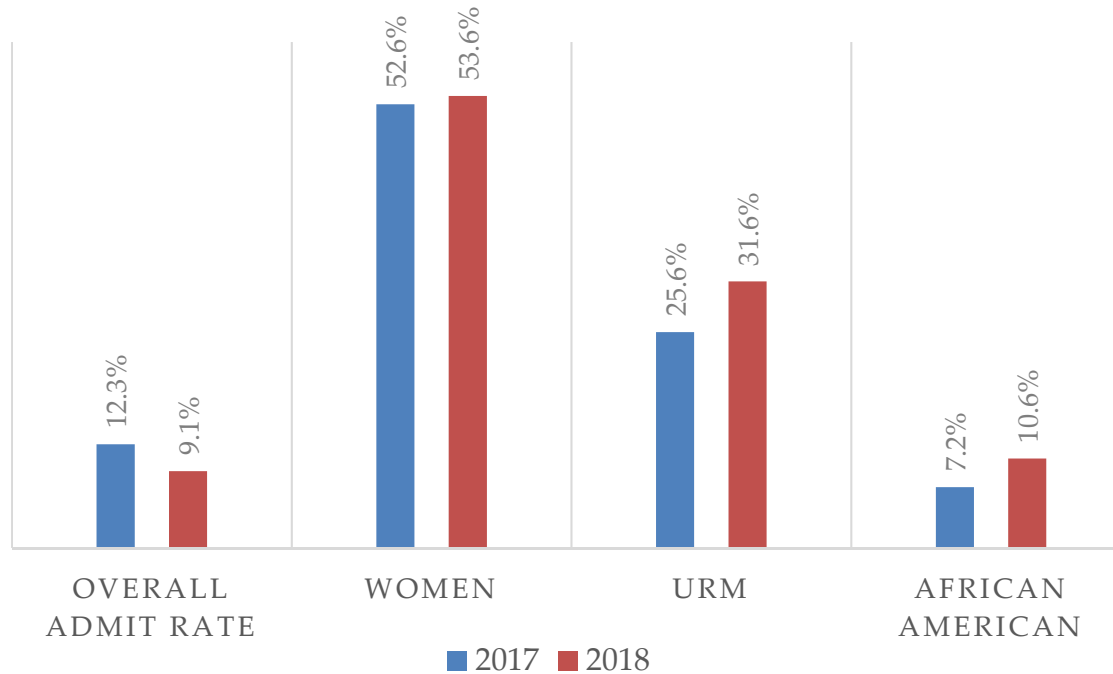
Another opportunity for a photo as a background?

Carol Ann Packard, 4/7/2018

# Glimpse of our Admissions/Diversity

(\*Admitted students - #Amazing!)

## ADMISSION FOR THE CLASS OF 2022

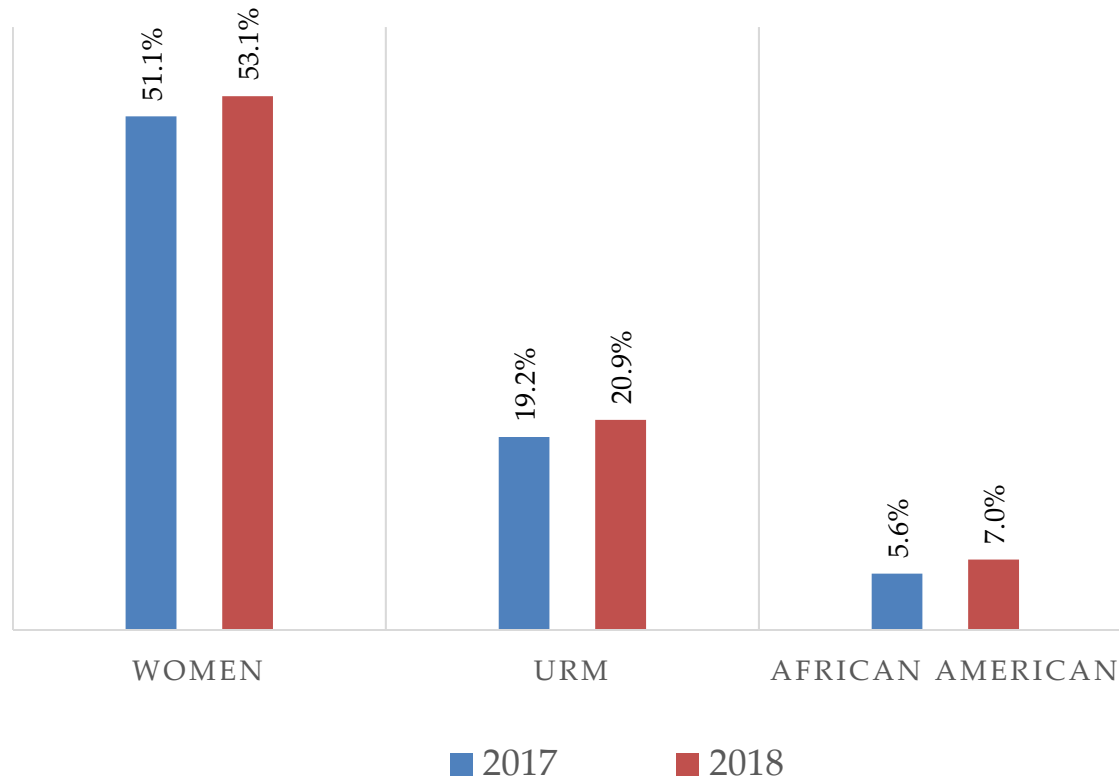


- 13,234 applications, 7.3% increase over last year
- 1,198 offers of admission, 322 fewer than last year

# Glimpse of our Admissions/Diversity

(\*Enrolling students - #Wowza!)

COMPOSITION OF THE FIRST-YEAR  
ENGINEERING CLASS: FALL 2018

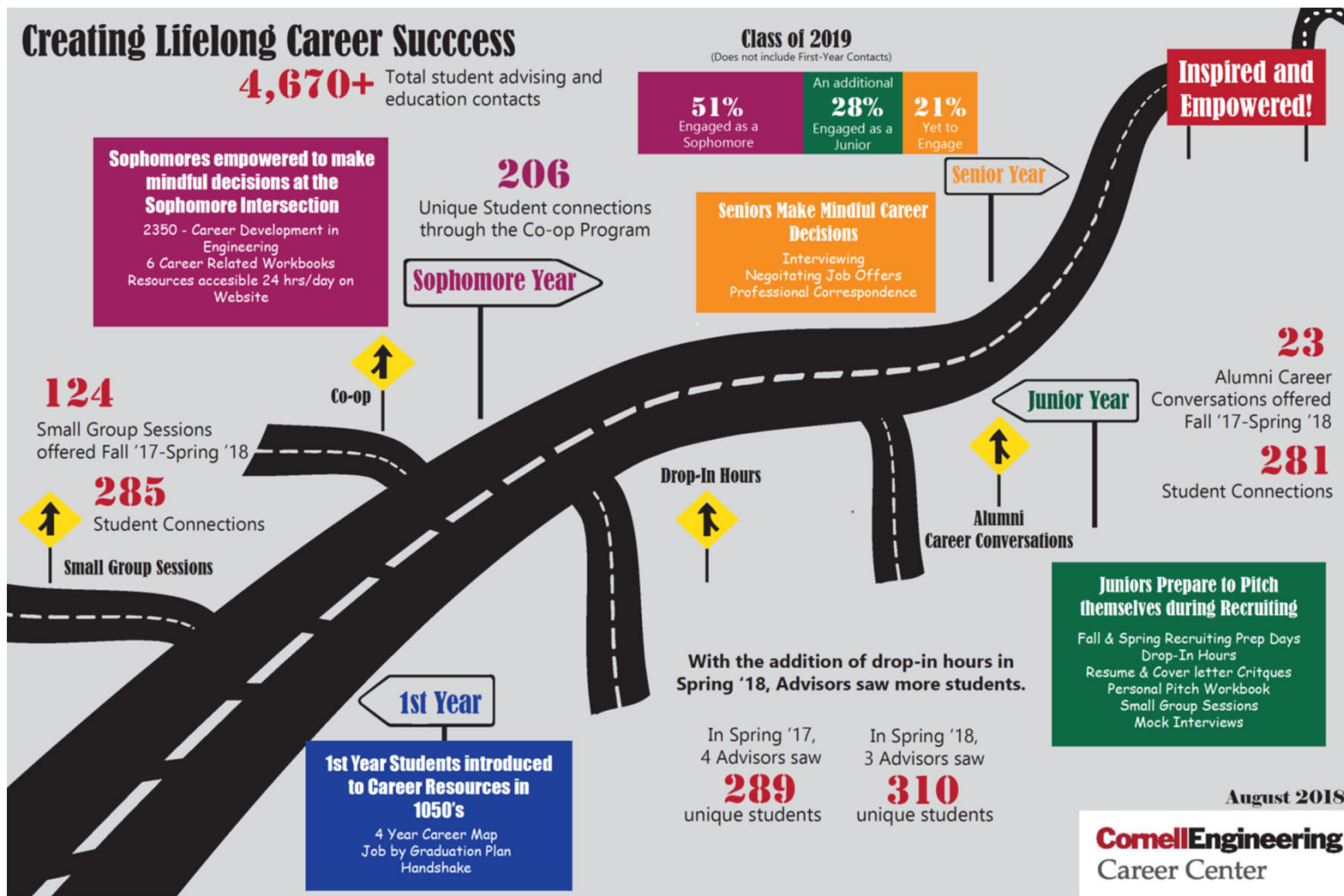


- 796 enrolling first-year engineers.
- SAT Math mid-50% range for enrolling students = 770 – 800.



# Engineering Career Center March 2019





- 85% of the Class of 2019 has engaged with Career Services between Fall 2016 and February 2019.
- 19% of the class already reports having secured their next destination.



## *Connecting Engineering Alumni with current students*

*Career Conversations* are a great way for alumni to share their career path, industry knowledge, and expertise with current students.

Tasnuva Tabassum, MS '17, currently at Applied Materials

PJ Kirner, BS '95 currently at Illumio

Mark Lenz, BS '95/ MEng '96, currently at Arcadis

Jordan Dick, BS '12, currently at Simpson Gumpertz & Heger

Tushar Chandra PhD '93, currently with Google

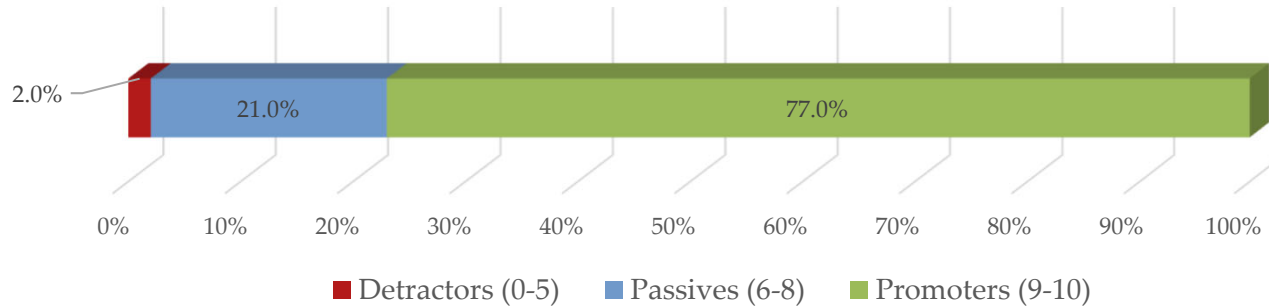


*Alumni Networking Receptions* were scheduled during Cornell Biomedical Treks to Boston (Biogen & Vertex) and San Francisco (Abbott & Stryker).

# Cornell Engineering Career Center asks...

*On a scale from 0-10, how likely are you to recommend Engineering Career Center to a friend?*

Percent of responses  
following Peer Advisor Appointments  
(0 = Not at all likely; 10 = Extremely likely)



**75 Net Promoter Score  
(NPS)**

# College Facilities Update March 2019



# 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 and Current Projects

- **Research, Infrastructure, and Public Space Projects**
  - Phillips 338 Afridi Lab Renovation – starting design
  - Upson 472 Moridi Lab Renovation – design 95% complete, about to bid
  - Carpenter Basement B05 for SE - design 95% complete, about to bid
  - Phillips Hall 2<sup>nd</sup> and 3<sup>rd</sup> Floor Reno and Labs – in construction
  - Upson 354 / 358 Tian Lab Renovation – in construction
  - Duffield Exterior Wall Repairs – in construction
- **Facility Master Plan Projects Update**
  - Hollister Hall Renovation and Addition – feasibility study has started
  - Olin Hall Reno Phase 1 to create CBE labs – construction has started
  - Rhodes Hall first floor “block” – construction is complete
- **BME Expansion for New Undergraduate Program**
  - University plan using existing spaces and additions
  - Comstock Hall Teaching Lab Clusters – design is 10% complete

# Research and Public Space Projects

- **Phillips Hall – 2<sup>nd</sup> and 3rd Floor Reno and Labs**



**3<sup>rd</sup> floor offices with walls demoed**

# Research and Public Space Projects

- **Upson 354 / 358 Tian Lab Renovation**



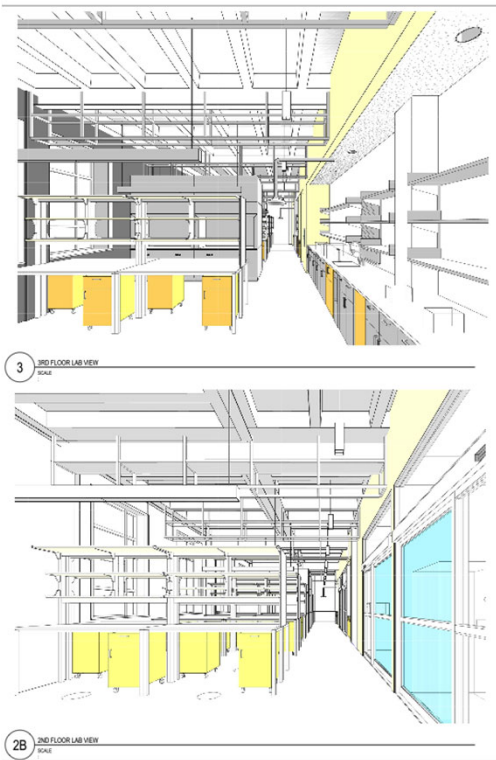
**Laser Lab**



**General Lab**

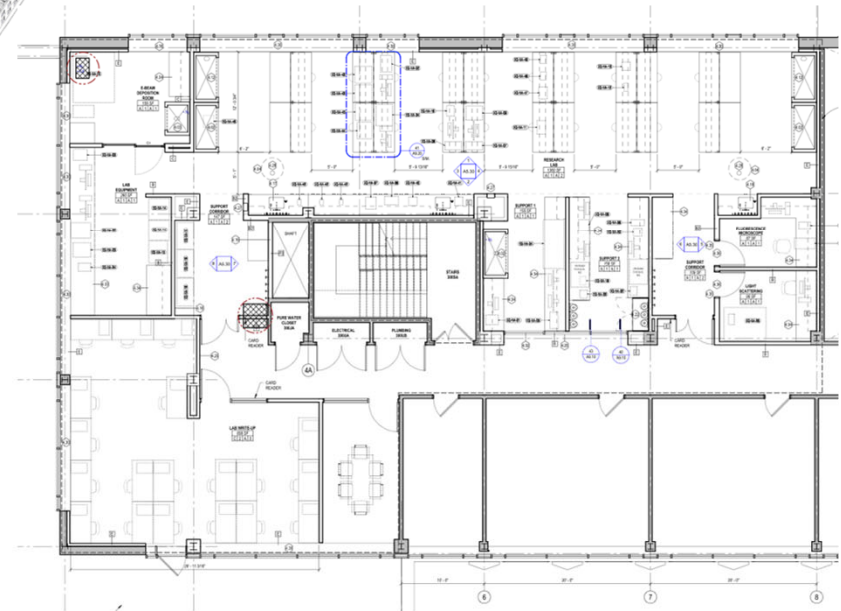
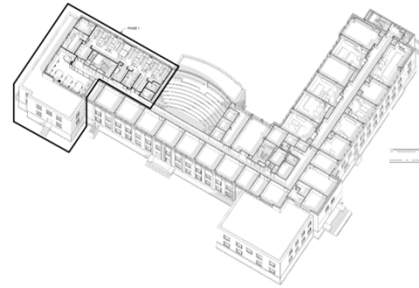
# Facility Master Plan Projects Update

- Olin Hall Phase 1 Reno to create CBE labs – in construction



Three new research labs in North wing

OLIN HALL - PHASE 1 RENOVATION

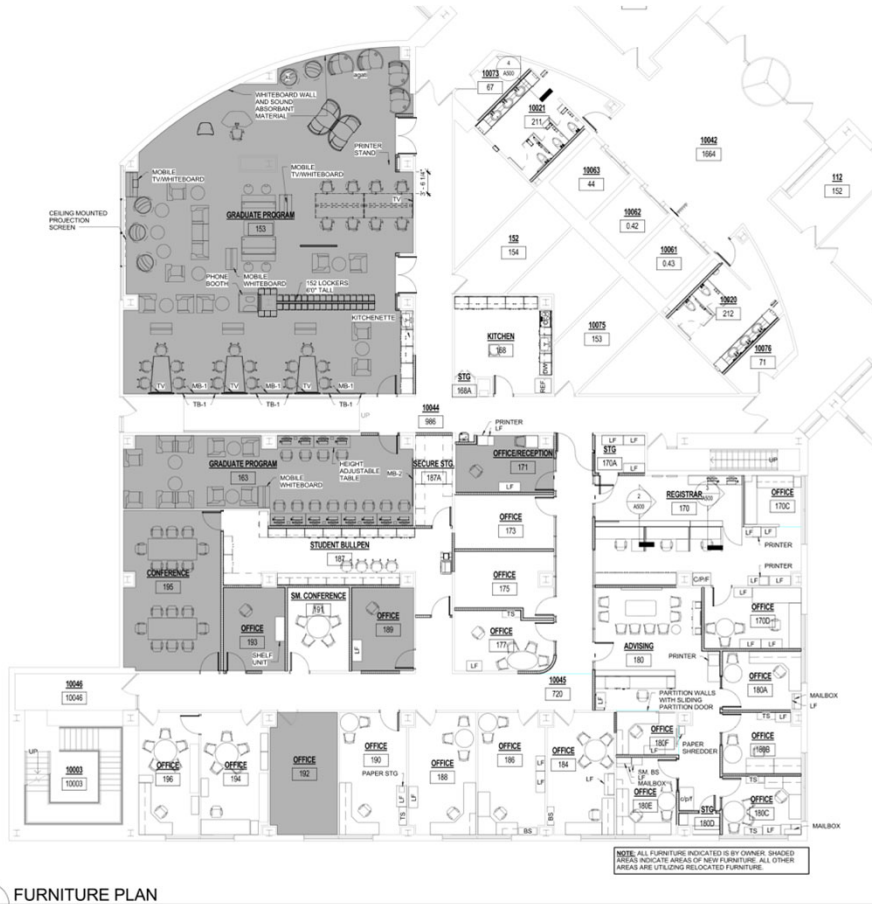


Third floor plan with offices and collaboration space adjacent to labs



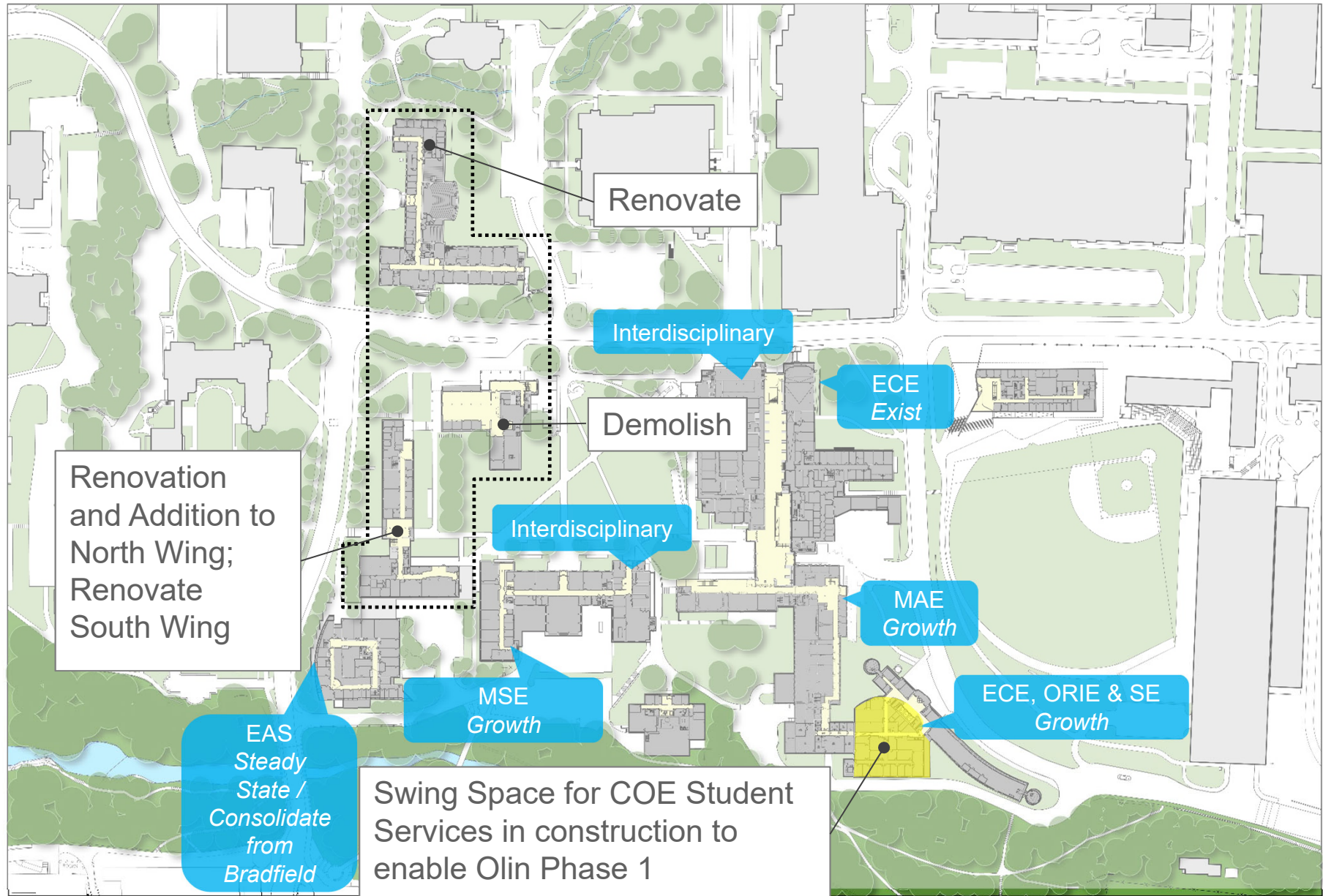
# Facility Master Plan Projects Update

- Rhodes Hall first floor "block" – construction is complete



Advising waiting area

# Master Plan Update – Hollister, Olin, Rhodes



Renovation and Addition to North Wing; Renovate South Wing

Renovate

Demolish

Interdisciplinary

Interdisciplinary

ECE Exist

MAE Growth

ECE, ORIE & SE Growth

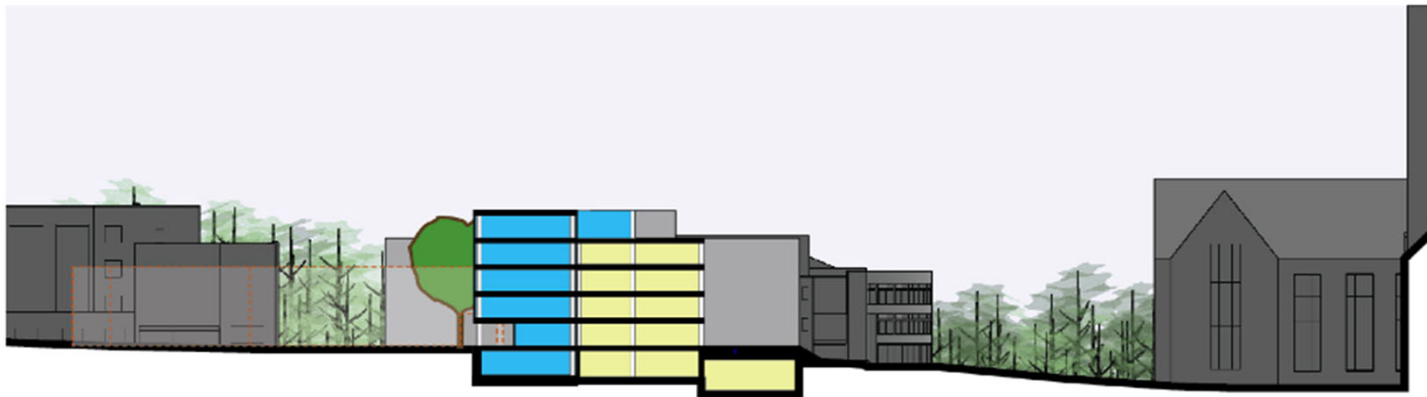
MSE Growth

EAS Steady State / Consolidate from Bradfield

Swing Space for COE Student Services in construction to enable Olin Phase 1

# Master Plan – Hollister Renovation and Addition

- Reduction in area and scope from “preferred” scheme in master plan update
  - Renovation and addition to north wing. Instead of demo and new.
  - Façade replacement
  - Modernization of classrooms
  - Modernization of labs
  - Co-location of COE Administration
- 
- Have selected NBBJ architects for feasibility study.
  - Study effort has started and is expected to be completed this summer



# College of Engineering Fiscal Year 2019 Giving Update

March 2019



# Giving Totals for Fiscal Year 2019

**Fiscal Year 2019 NG&C Goal** \$ 40,000,000

**Fiscal Year 2019 NG&C Total** \$ 23,880,000

*60% of our FY19 goal*

**Fiscal Year 2019 NG&C Additional  
Verbal Commitments** \$ 10,000,000

**Fiscal Year 2019 Annual Fund** \$ 2,600,000

**Goal Fiscal Year 2019 Annual** \$ 1,815,283

**Fund Total**

*1,556 donors of 2,700 goal*

**Fiscal Year 2019**

**ECC Member Giving to College:**

*37 donors – 16 Emeritus 21 Current*

*As of 3/8/19*

# Thank you!

**Lance R. Collins**  
Dean of Engineering

**March 11-12, 2019**