

CornellEngineering Update

Lance R. Collins
Dean of Engineering

October 20-21, 2016

CornellEngineering



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

Associate Dean for Administration



Erin Mulrooney
Associate Dean for
Administration

- Joined Cornell in August 2016.
- Associate Dean for Administration
- Previously served as the Assistant Vice President for Strategic Resources and Chief Operating Officer for Facilities Services , University of Chicago.
- Prior to the University of Chicago, she spent 16 years at the University of Pennsylvania, ultimately serving in an Administrative and Financial Officer role.
- Holds a Master of Science degree in Organizational Dynamics from the University of Pennsylvania.

Associate Dean for Student Services



Michael Thompson
Associate Dean for
Student Services

- Joined Cornell in 1984.
- Professor of Materials Science and Engineering
- Awards
 - North American Award for Technical Contribution to Semiconductor Industry (SEMI) 2009
 - Excellence in Teaching Awards in 2001, 1998 and 1995 (Cornell University)
 - IBM Faculty Development Award
- Degrees received
 - B.S. 1979, Physics, California Institute of Technology
 - M.S. 1982, Physics, Cornell University
 - Ph.D. 1984, Physics, Cornell University
- Research Focus: Behavior of semiconductor materials under pulsed and CW laser exposure.

Director of Biological and Environmental Engineering



John March
Director of Biological and Environmental Engineering

- Joined Cornell in 2005.
- Associate Professor of Biological and Environmental Engineering
- Awards
 - Excellence in Teaching Award, Cornell University (2014)
 - Editor’s Choice feature for paper on synthetic intestinal scaffolds (2012) *Biotechnology and Bioengineering*
 - Presidential Early Career Awards for Scientists and Engineers (PECASE) (2011)
- Degrees received
 - B.A. 1991 , English, University of Georgia
 - B.S. 1996, Biological Engineering, University of Georgia
 - M.S. 2000, Biological Engineering, University of Georgia
 - Ph.D. 2005, Chemical Engineering, University of Maryland
- Research Focus: Interspecies communication; tissue engineering; systems biology.

Director of Chemical and Biomolecular Engineering



Abraham Stroock
William C. Hooey Director
Robert Frederick Smith School of
Chemical and Biomolecular Engineering

- Joined Cornell in 2003.
- Gordon L. Dibble '50 Professor of Chemical and Biomolecular Engineering
- Awards
 - Beckman Foundation Young Investigator Award (2006)
 - MIT Technology Review's TR35 list of top innovators under 35 (2007)
 - NSF CAREER Award (2008)
 - Camille Dreyfus Teacher Scholar Award (2009)
 - Van Ness Lectureship at Rensselaer Polytechnic Institute (2010)
- Degrees received
 - B.A., 1995, Physics, Cornell University
 - M.S., 1997, Solid State Physics, University Paris VI and XI
 - Ph.D., 2002, Chemical Physics, Harvard University
- Research Focus: manipulating dynamics and chemical processes on micrometer scales

Lester B. Knight Director of Cornell NanoScale Science & Technology Facility (CNF)



Christopher Ober
Lester B. Knight Director of CNF

- Joined Cornell in 1986.
- Francis Norwood Bard Professor of Materials Science
- Served as Interim Dean of Engineering (2009-10)
- Awards and Honors
 - The Photopolymer Science & Technology Outstanding Achievement Award 2015
 - Fellow, American Association for the Advancement of Science (AAAS) 2015
 - Fellow, American Chemical Society 2014
- Degrees received
 - B.Sc. (Chemistry), University of Waterloo, 1978
 - M.S. (Polymer Science & Engineering), University of Massachusetts-Amherst, 1980
 - Ph.D. (Polymer Science & Engineering), University of Massachusetts- Amherst, 1982
- Research Focus – lithography, patterning, the biology materials interface and control of surface structure in thin films.

New Faculty

Men – 17 (77%)

Women – 5 (23%)

URM – 1 (4.5%)

New Faculty

(Arrivals Fall 2016)



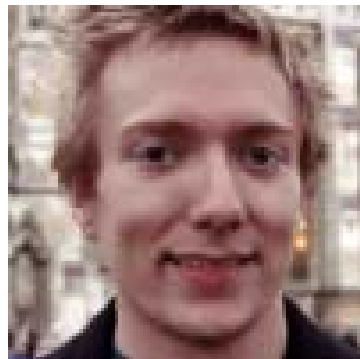
Lorenzo Alvis
Professor, CS



Rachit Agarwal
Asst. Professor, CS



Immanuel Trummer
Asst. Professor, CS



Adrian Sampson
Asst. Professor, CS



Yang Ning
Asst. Professor, DSS

New Faculty

(Arrivals Fall 2016)



Gennady Shvets
Professor, AEP



Guillaume Lambert
Asst. Professor, AEP



Ilana Brito
Asst. Professor, BME



Jeffrey Varner
Professor, CBE



Matthew Reid
Asst. Professor, CEE



Christina Delimitrou
Asst. Professor, ECE

New Faculty

(Arrivals Fall 2016)



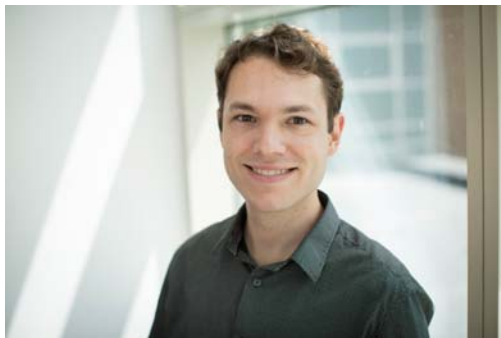
[Kirsten Petersen](#)
Asst. Professor, ECE



[Yayadev Acharya](#)
Asst. Professor, ECE



[Madeleine Udell](#)
Asst. Professor, ORIE



[Damek Davis](#)
Asst. Professor, ORIE



[Andrew Wilson](#)
Asst. Professor, ORIE



[Vikram Krishnamurthy](#)
Asst. Professor
Cornell Tech/ECE

New Faculty

(Arrivals Fall 2016)



Scott Steinschneider
Asst. Professor, BEE



Itai Gurvich
Assoc. Professor
Cornell Tech/ORIE



Nathan Kallus
Asst. Professor
Cornell Tech/ORIE

New Faculty

(Arrivals Fall 2016)



Helen Nissenbaum
Professor
Cornell Tech/Info Sci.



Mukti Khaire
Professor
Cornell Tech/Johnson School



Tapan Parikh
Assoc. Professor
Cornell Tech/Info Sci.



Karen Levy
Asst. Professor, Info Sci

New Faculty

(Arrivals Fall 2016)



Ronald Brachman
Director, Jacobs Technion-Cornell Institute



Charles Whitehead
Professor
Cornell Tech/Law School



James Grimmelman
Professor
Cornell Tech/Law School

Major Faculty Awards

- **Friendship Award** - China's highest recognition for foreign experts
 - John Hopcroft (CS)
- **2016 Leonardo da Vinci Medal, Society for the History of Technology**
 - Ron Kline (ECE, A&S)
- **2016 Biennial Medal, International Environmental Modelling and Software Society**
 - Patrick Reed (CEE)
- **2016 Young Investigator Award, American Chemical Society's Journal ACS *Synthetic Biology***
 - Julius Lucks (CBE)
- **National Academy of Sciences Argentina**
 - Suzanne Kay (EAS)

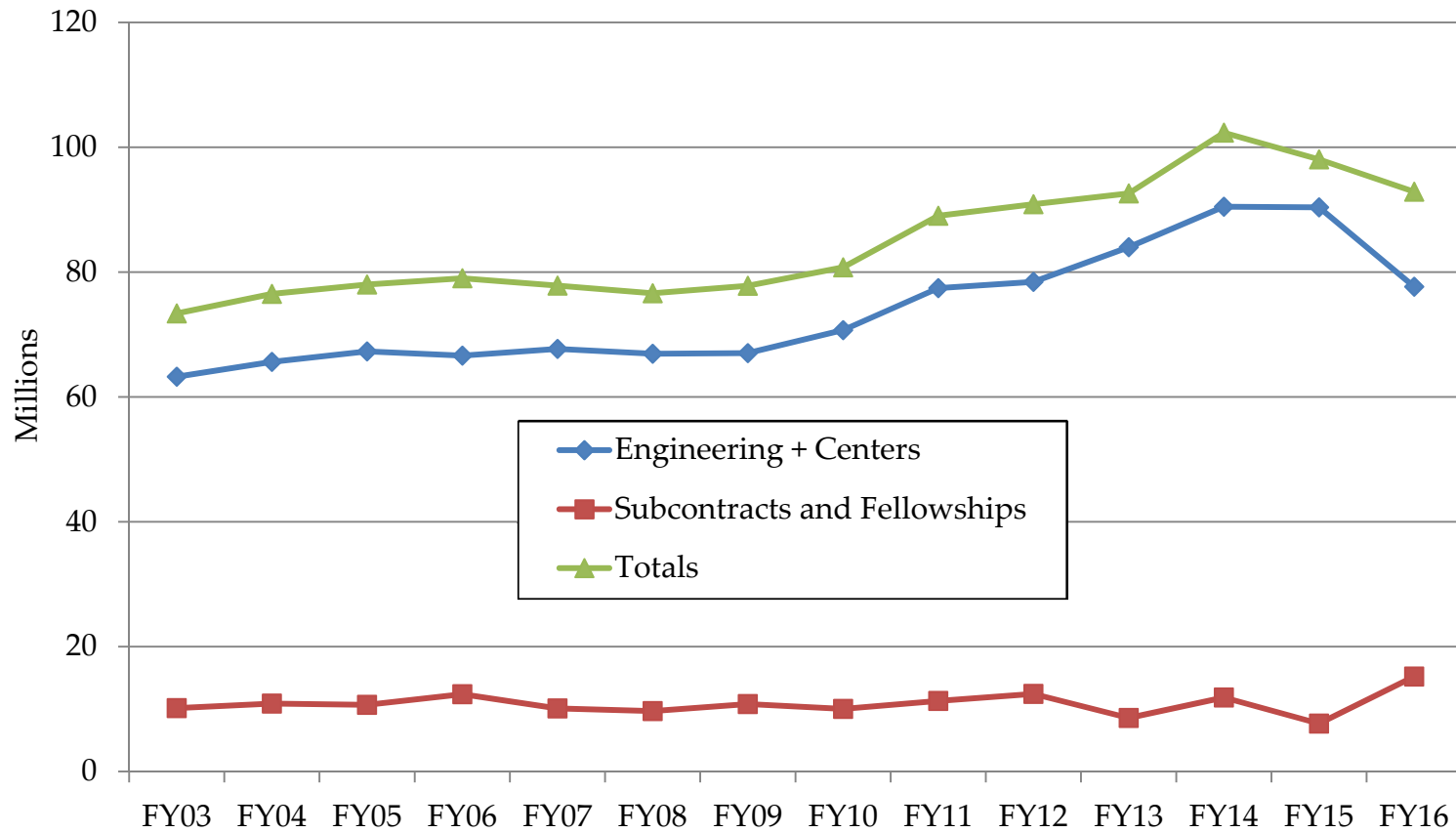
Major Faculty Awards

- **2016 American Geophysical Union's (AGU) Class of Fellows**
 - Robert Kay (EAS)
- **Hartwell Individual Biomedical Research Award, Hartwell Foundation**
 - Minglin Ma (BEE)
- **2017 IEEE Internet Award**
 - Deborah Estrin (CS, Cornell Tech)
- **2016 Fellow, Society of Industrial and Applied Mathematics (SIAM)**
 - David Williamson (ORIE)
- **2016 Microsoft Research Outstanding Collaborator**
 - John Hopcroft (CS)

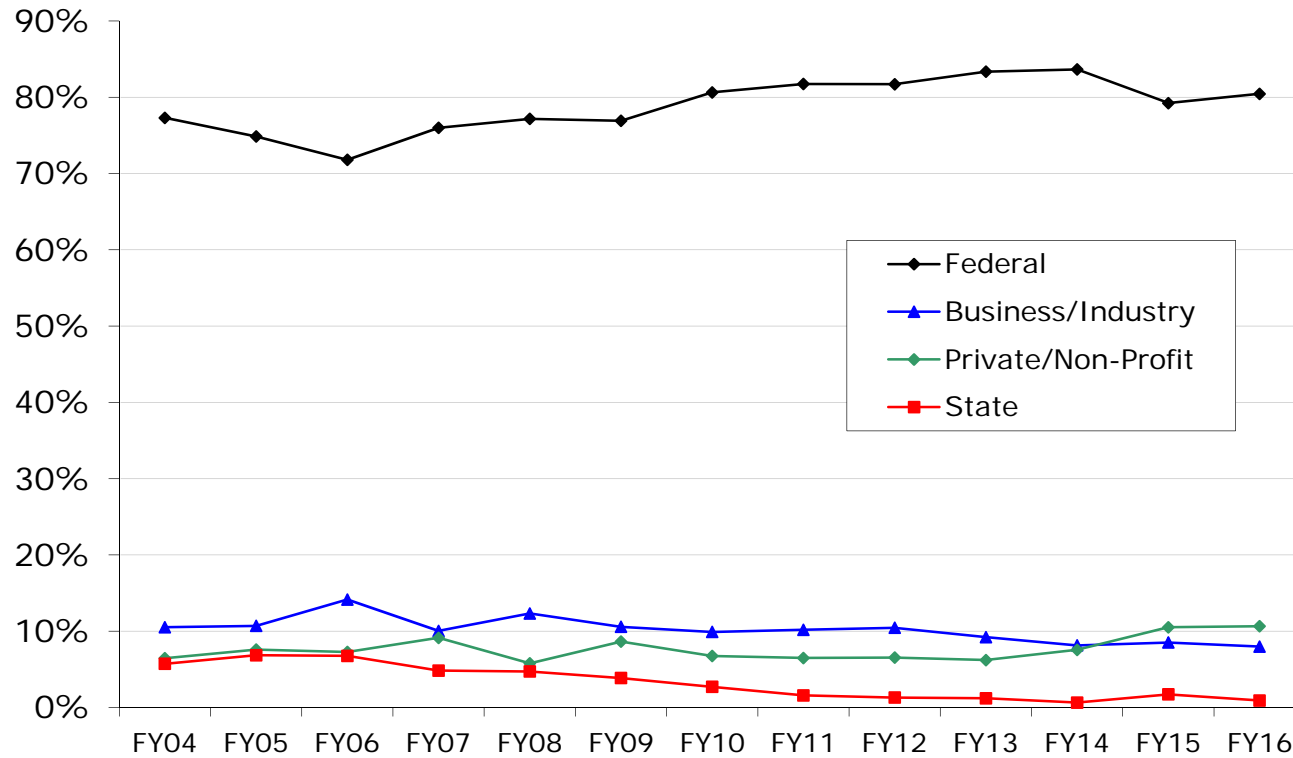
Research and Graduate Studies Highlights October, 2016



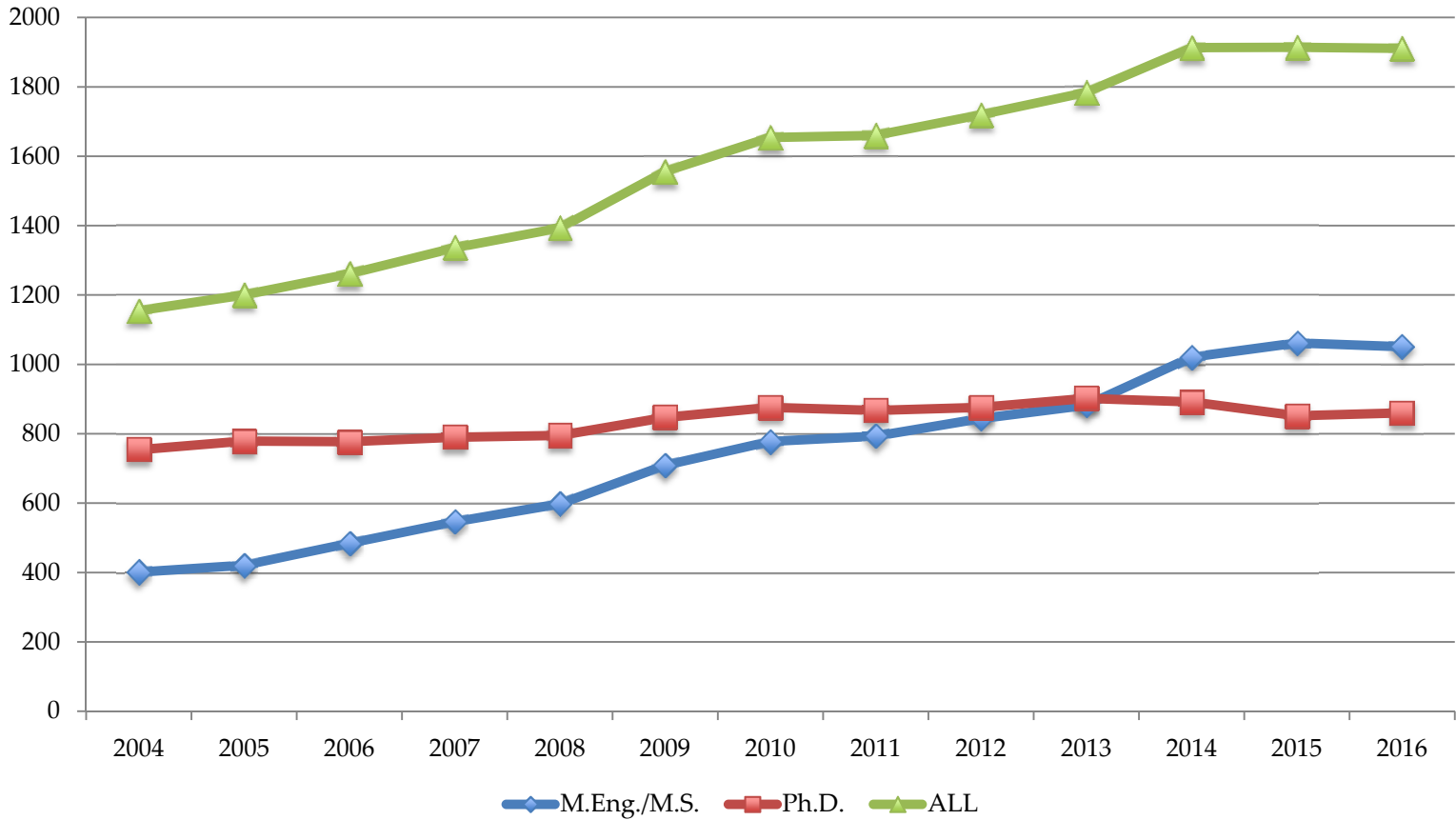
Research Expenditures



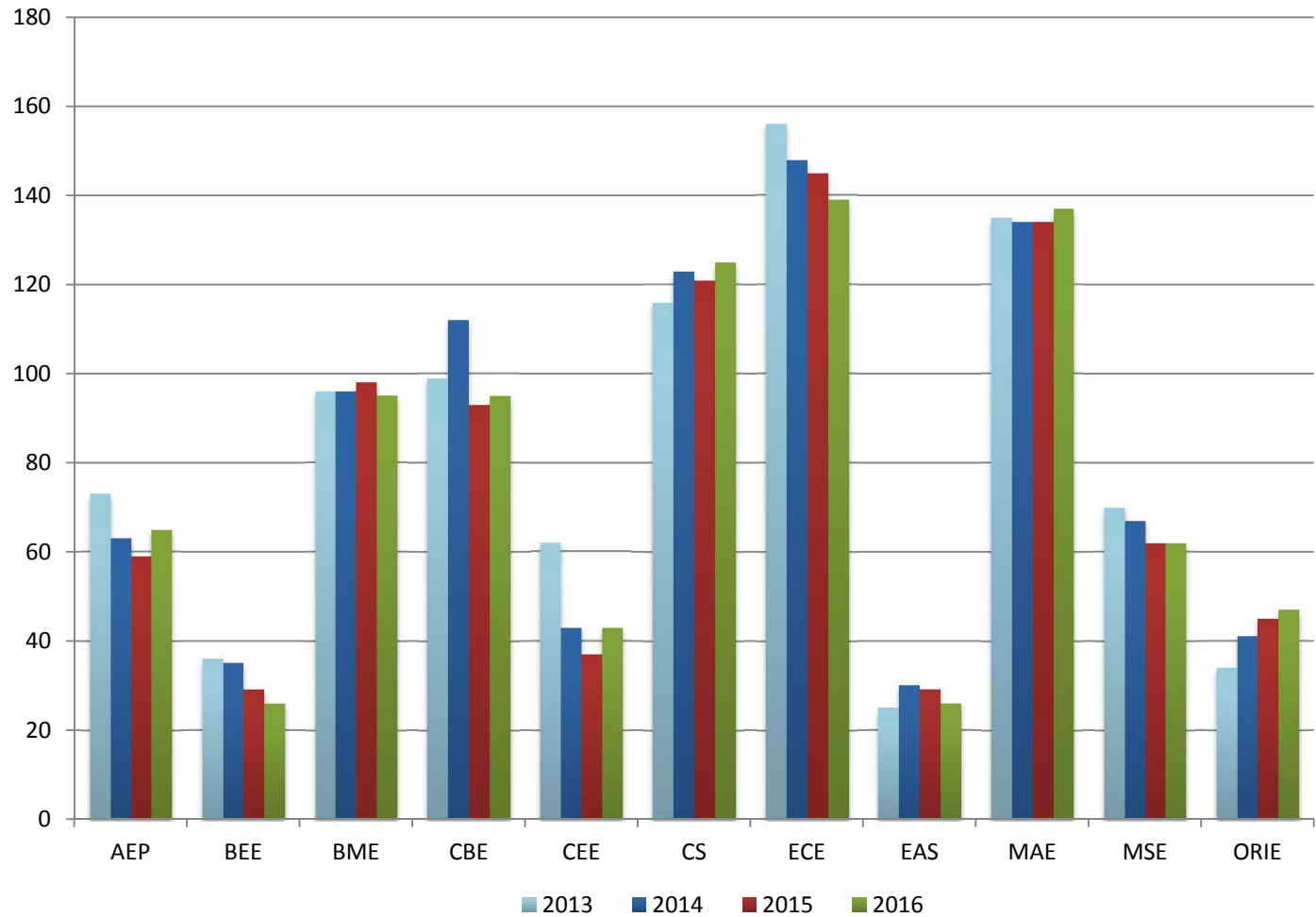
Percent Distribution of Research Expenditures



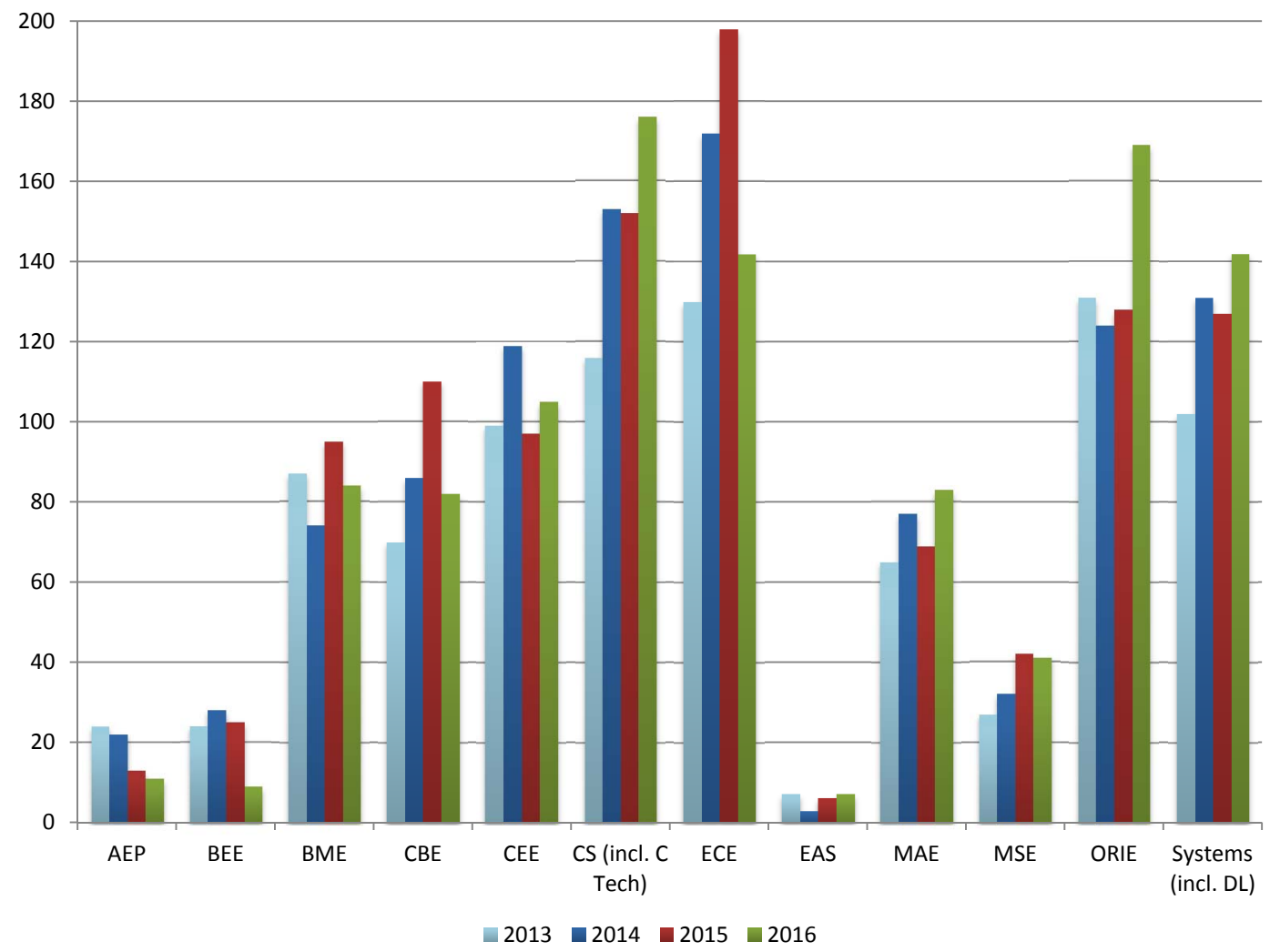
Graduate Student Enrollment



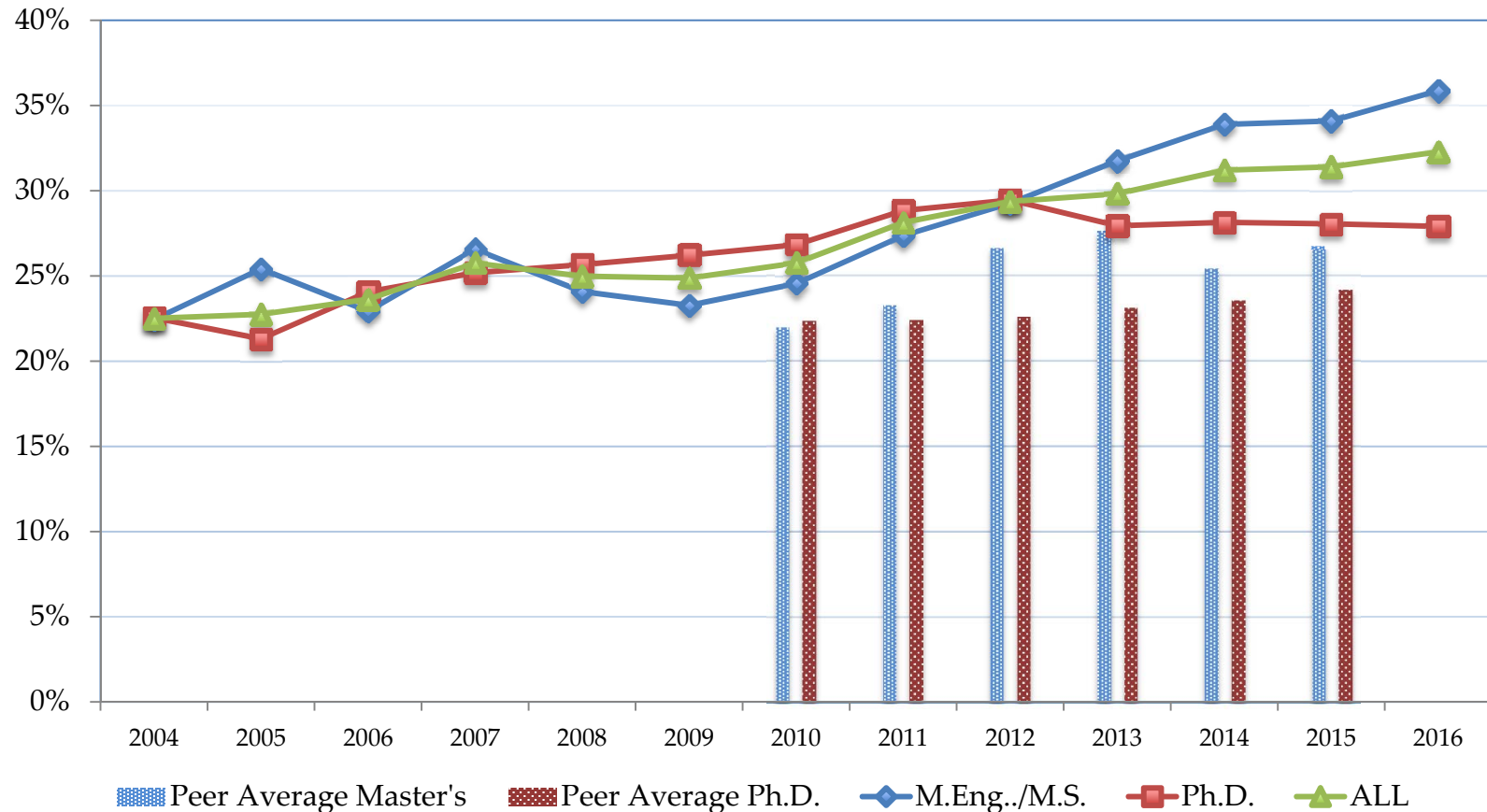
Ph.D. Enrollment by Field



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

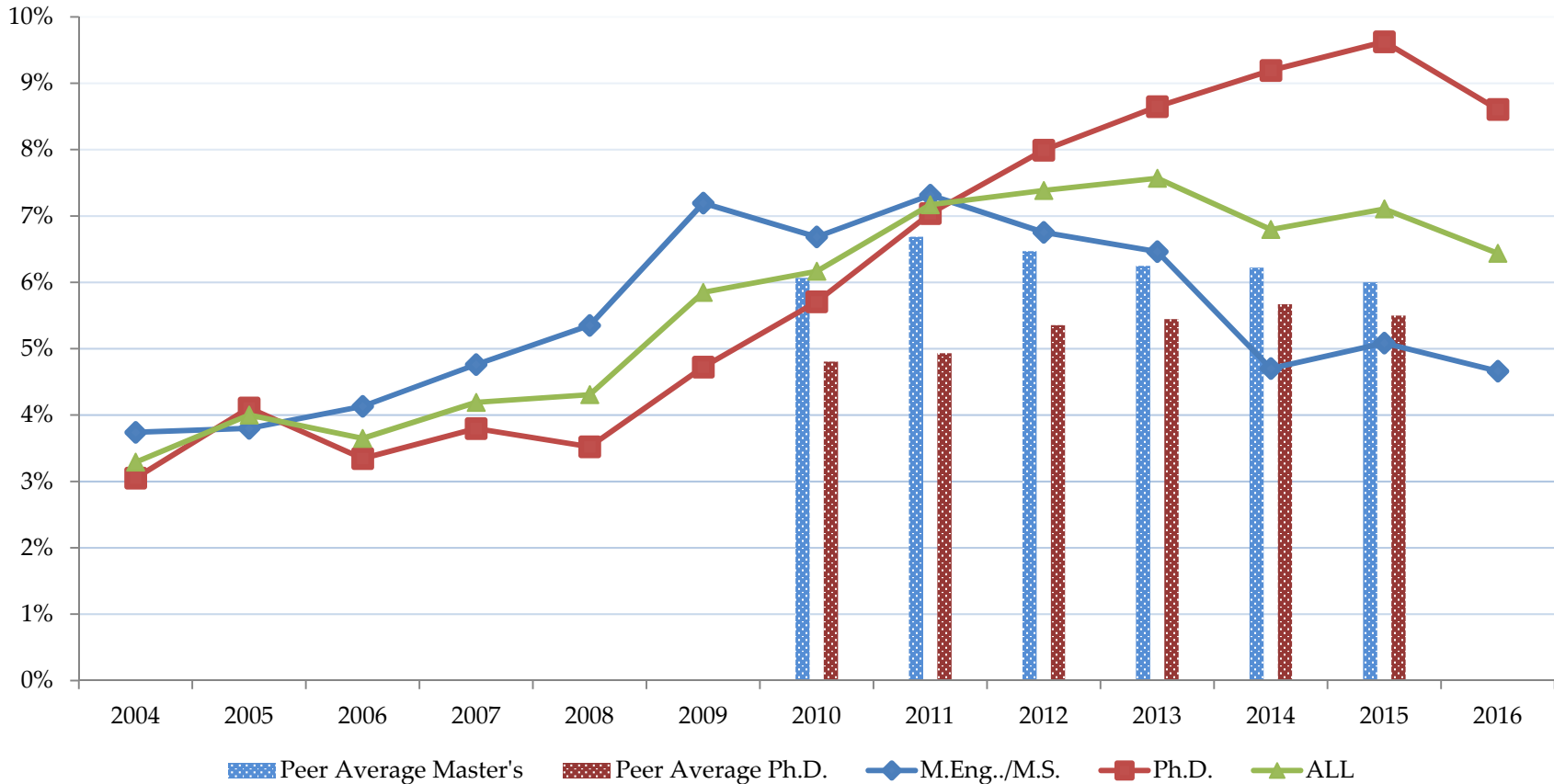


Graduate Student Enrollment Women



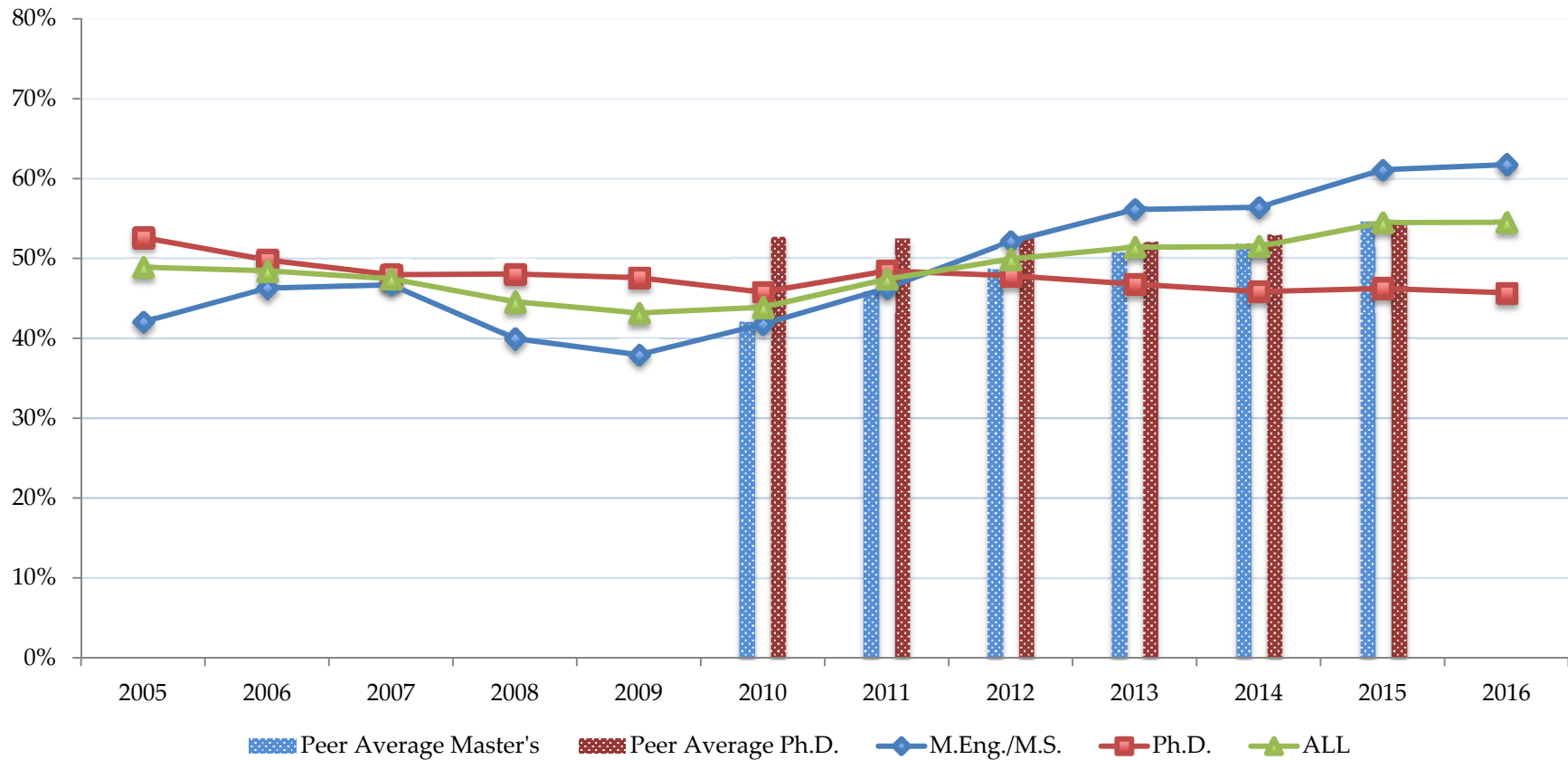
* Peers: Carnegie, Columbia, Georgia Tech, MIT, Princeton, Purdue, Stanford, UT Austin, Berkeley, UI-Urbana Champaign, Michigan
 Source for peer data: ASEE data mining tool

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

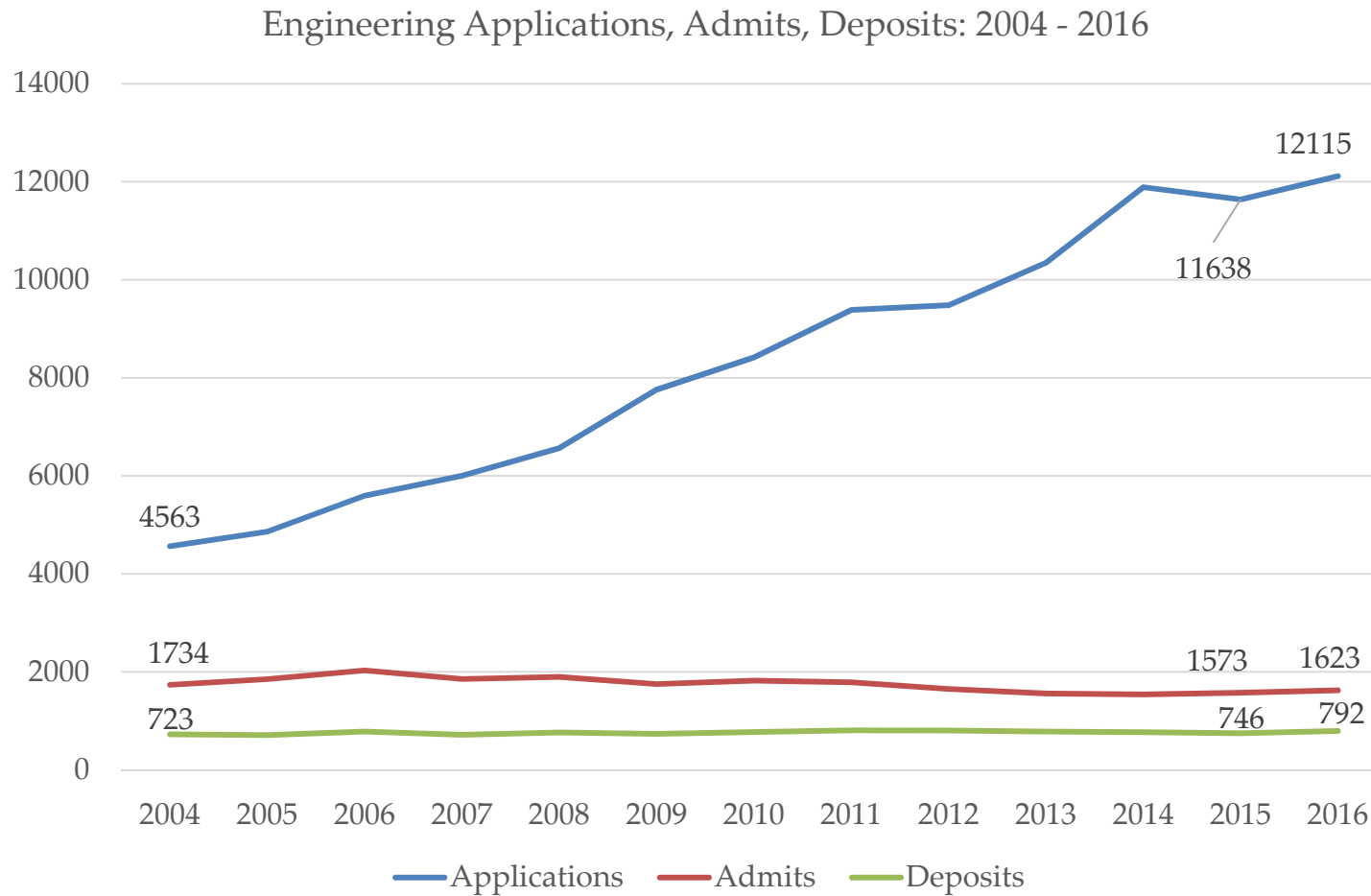


* Peers: Carnegie, Columbia, Georgia Tech, MIT, Princeton, Purdue, Stanford, UT Austin, Berkeley, UI-Urbana Champaign, Michigan
 Source for peer data: ASEE data mining tool

Admissions Highlights October, 2016

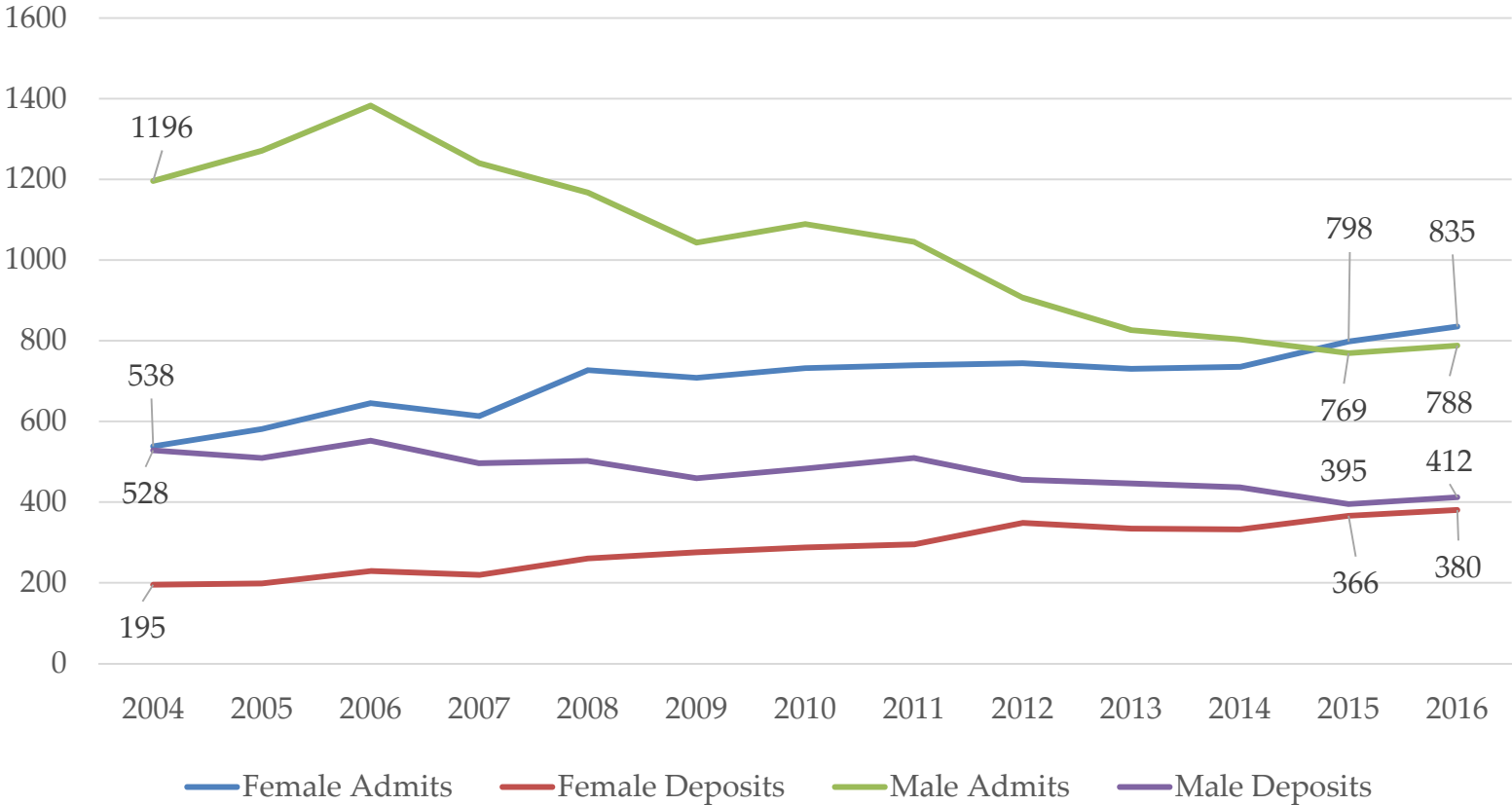


UG Engineering Applications, Admits, Deposits: 2004 – 2016



UG Female and Male Admits and Deposits: 2004 - 2016

Female and Male Admits and Deposits: 2004 - 2016



DPE Highlights October, 2016



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

2015-'16 Initiatives

- Faculty engagement
 - **Community building dinners:** New faculty across disciplines gather at the Associate Dean for Diversity and Faculty Development's house
 - Outcomes: **Generally successful.** Intimate, open discussion. Slightly difficulty to schedule.
 - Next Steps: Considering reinstating junior faculty lunch series
 - Formalized the **Ephraim Garcia Engineering Society:** Faculty interest group focused on creating/maintaining an inclusive environment for URM faculty
 - Outcomes: **Very successful.**
 - Allows the dean to hear issues facing URM faculty.
 - Acts as an informal mentorship committee for junior URM faculty.

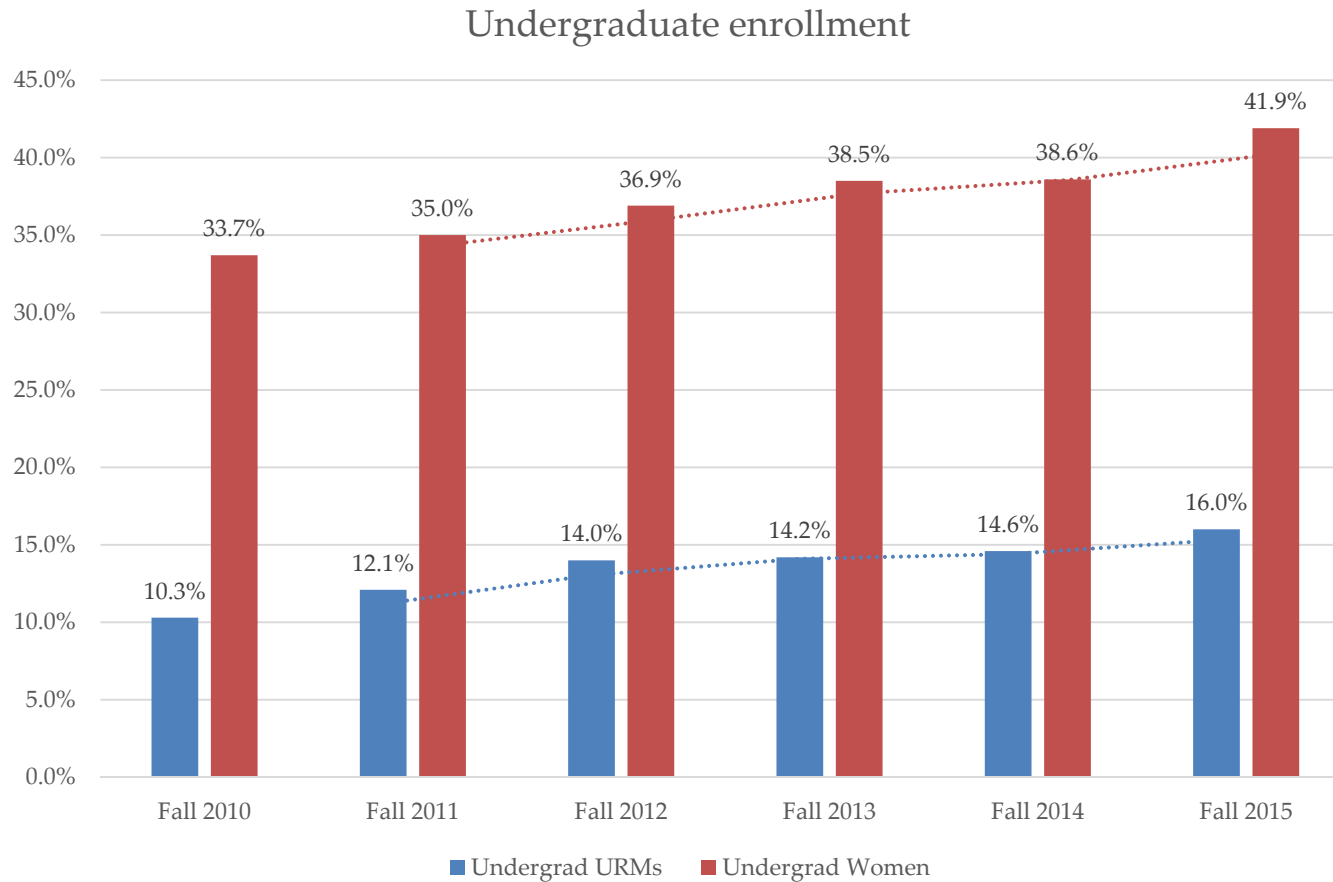
2015-'16 Initiatives (continued)

- **Graduate student engagement**
 - In the process of developing **Your Story, My Story** to capture inclusion issues for graduate/professional students (joint with several on campus partners)
 - Outcomes: Completed survey. Interactive theater still in development
 - **Summer Success Symposium**: One day symposium that provides workshops related to successful early career decision-making in industry and academia
 - Outcomes: **Very successful**. Student feedback was almost uniformly positive

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
- **The Louis Stokes Alliances for Minority Participation (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
- **Ryan Scholars**
 - 2015 Ryan Scholar retention rate in COE is 97% compared to 93% of URMs in COE
 - 100% of Ryan Scholars remain in good academic standing for 2016 January
 - 34 slots for 2016 Summer

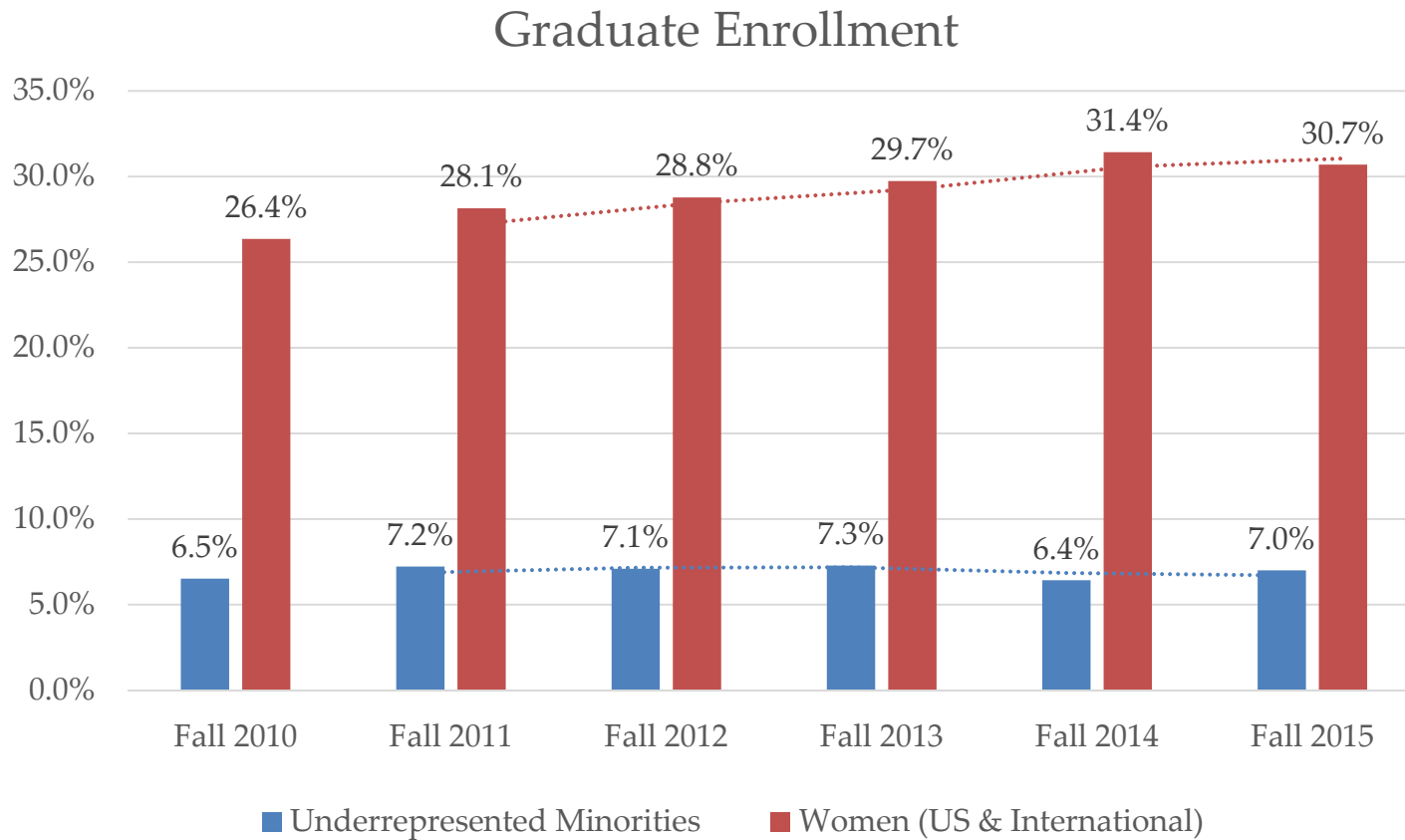
Undergraduate Diversity



National (Fall 2015): Female 21.4%, URM 16.4%



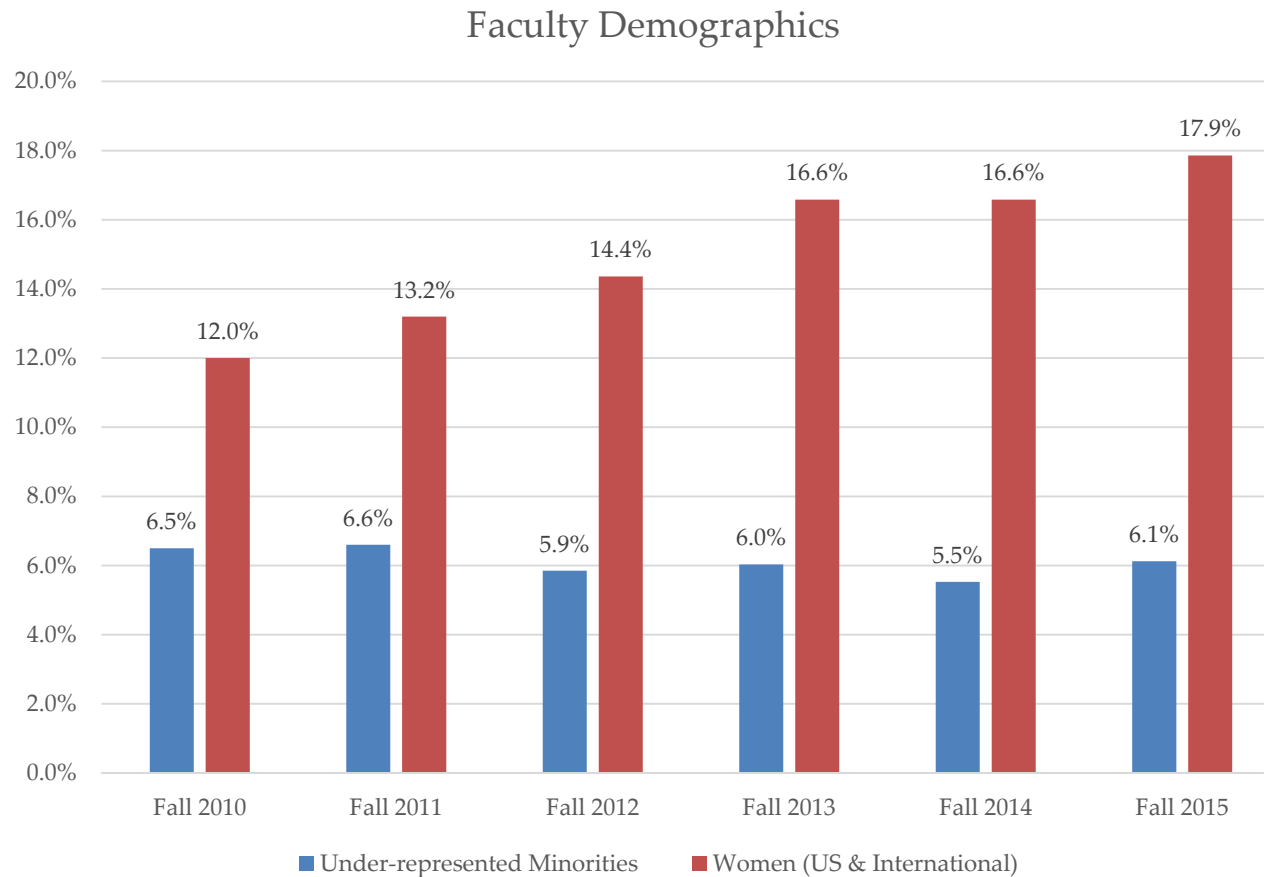
Graduate Diversity



National (Fall 2015): Female 25.1%, URM 4.8%



Faculty Demographics



National (Fall 2015): Female 15.7%, URM 4.8%

2016-'17 Initiatives

- **Undergraduate URM Student Pipeline Issue**
 - The demographics of the **Catalyst** summer program is being reimaged (enabled by a gift by Conrad Kenley)
 - Admitting more rising high school seniors
 - Almost fully funding “Cornell admissible” students
 - Recruiting them to Cornell during their weeklong experience
 - Connecting with Community Based Organizations
 - Visited the **South Central Scholars** in Los Angeles
 - **Diversity Hosting Weekend** (Spring)
 - Students that have already been admitted spend a weekend on campus

2016-'17 Initiatives

- Graduate student engagement
 - Will complete the **Your Story, My Story Initiative** and begin Cornell Interactive Theater Ensemble vignettes
 - **Summer Success Symposium (2nd year)**: One day symposium that provides workshops related to successful early career decision-making in industry and academia
 - **Diverse Women in STEM Symposium**: One day symposium covering issues facing women in STEM from the undergraduate level to the faculty level
 - **Sloan lunch series**: Made adjustments to the series to include faculty and industry speakers (approximately every other meeting)

2016-'17 Initiatives

- **Faculty Recruitment and Engagement**
 - The **Strategic Oversight Committee** has now been institutionalized
 - **Dean's Excellence Seminars:**
 - Dean funds research seminars by faculty from under-represented groups
 - Folded into the departmental seminar series.
 - Benefits include recruiting faculty and encouraging URM and female graduate students to pursue academia
 - **Junior Faculty Meeting Series:** Reinstated series to build a sense of community among all faculty. Sometimes there is an agenda, others just building connections
 - **Cornell Interactive Theatre Ensemble:** CITE team will visit every department (campus wide) to increase understanding of teaching in a diverse environment

Student Project Team Highlights October, 2016



Relevance

atmosphere and arena to enable intrinsic motivation to thrive

...any project...any team

Autonomy

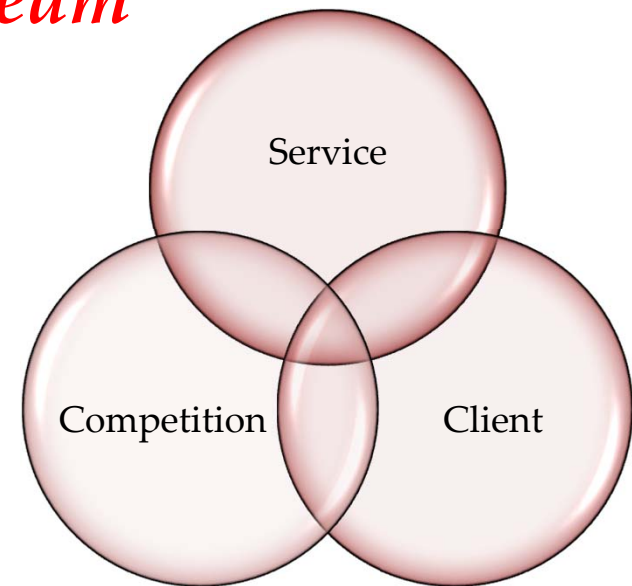
-task -technique -time -team

Awareness

-self -peers -society -hazards

Prowess

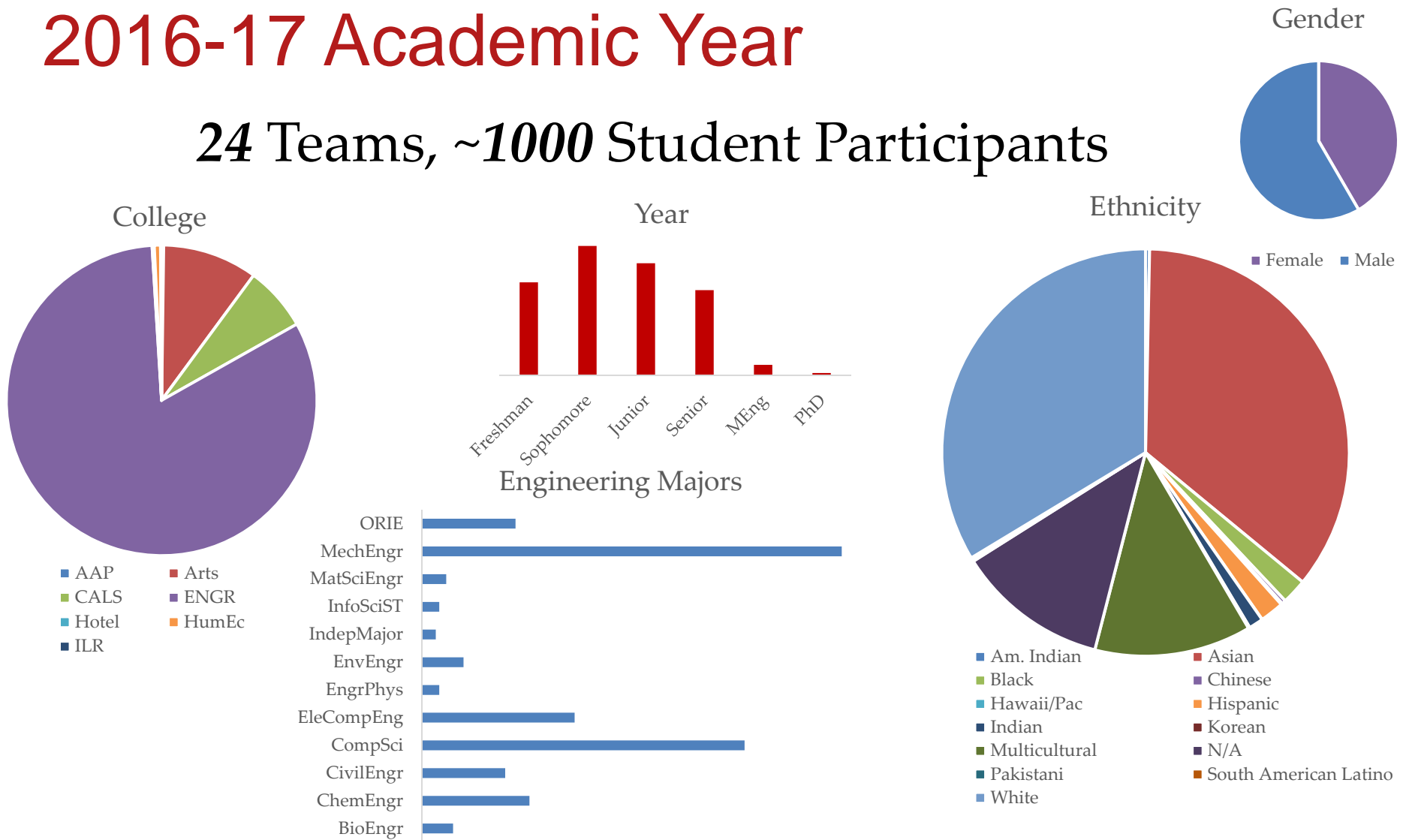
-skill -profession -materials -methods



“To be an ENGINEER, not only do engineering”

2016-17 Academic Year

24 Teams, ~1000 Student Participants



Microcosm of student body and engineering design enterprises

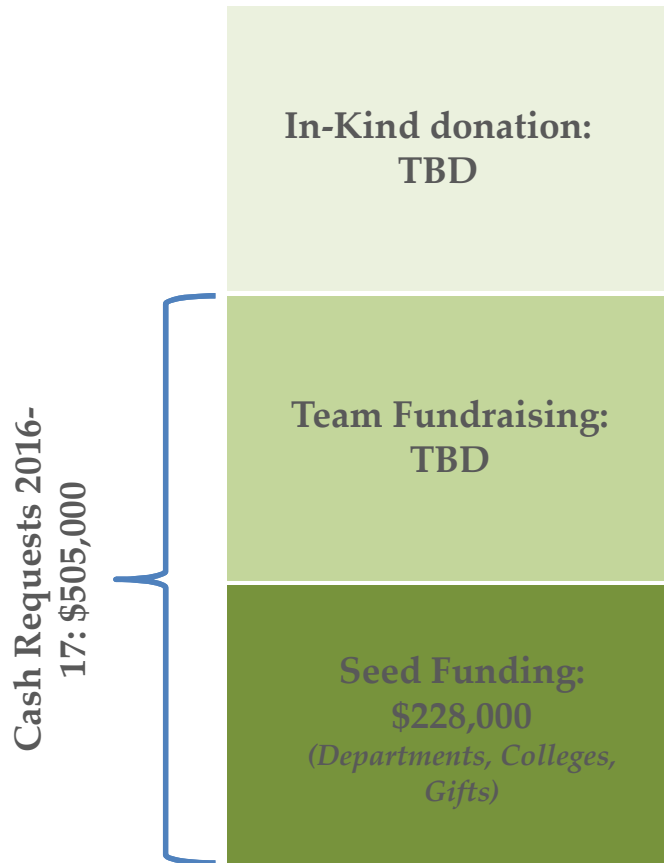
CornellEngineering STUDENT PROJECT TEAMS



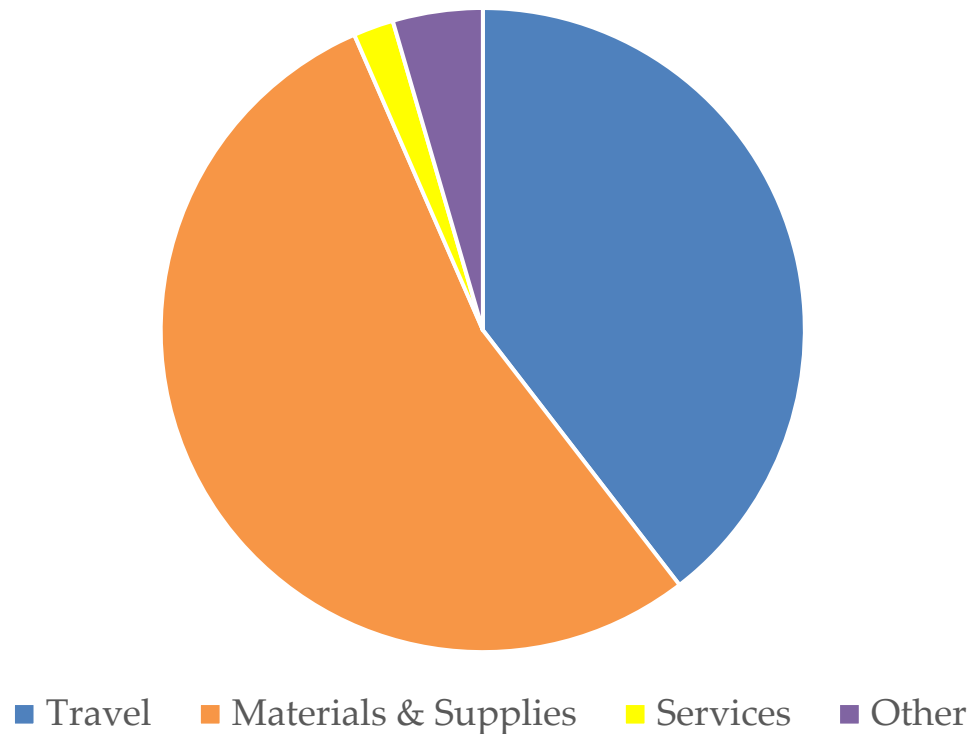
Funding

Team Budget Proposals: \$1,000,000+
Anticipate $\frac{1}{4}$ Internal, $\frac{1}{4}$ Fundraising and $\frac{1}{2}$ In Kind
2015-16 over \$250,000 in gifts brought in by teams

Income



Expenses



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CornellEngineering

@CornellENGTeams



Engineering Career Center

*Inspiring and Empowering Cornell Engineers to Create
Lifelong Career Success*



Engineering Post Graduation Report – 2015

Post-Graduate Activities

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**

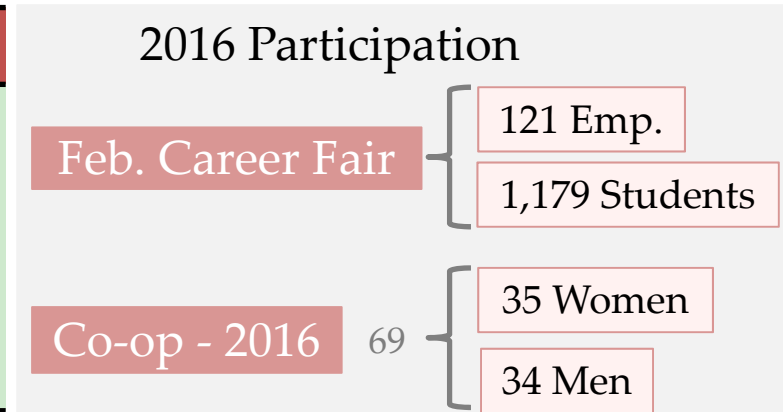
** 53 of 174 MEng listed as seeking employment selected "Have an offer, but still looking"*

Employers Hiring 8+ Eng. Students All Degrees

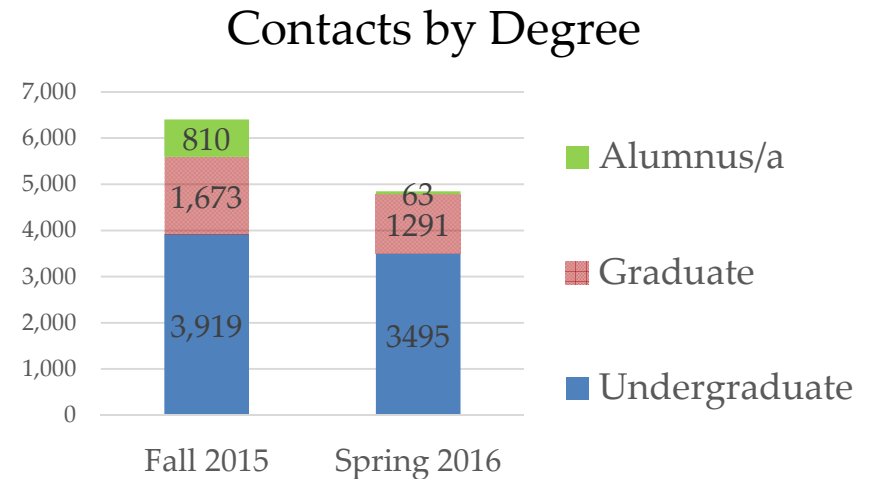
Oracle	38	Amazon	16	Microsoft	12	PwC	8
Lockheed Martin	31	Epic	15	Accenture	11	Facebook	8
Google	17	Goldman Sachs	13	Workday	9	EY	8
Intel	16	Deloitte	13	LinkedIn	9	Citi	8

Campus Impact and Office Services

	Fall 2015	Spring 2016	Total
Resume Critiques (w/ Student Staff)	348	250	598
Mock Interviews (w/ Student or Professional Staff)	66	68	134
Appointments (including phone)	703	710	1,413



11,400+
Student Contacts (appointments, workshops, fairs, & interviews)



College Facilities Update October, 2016



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

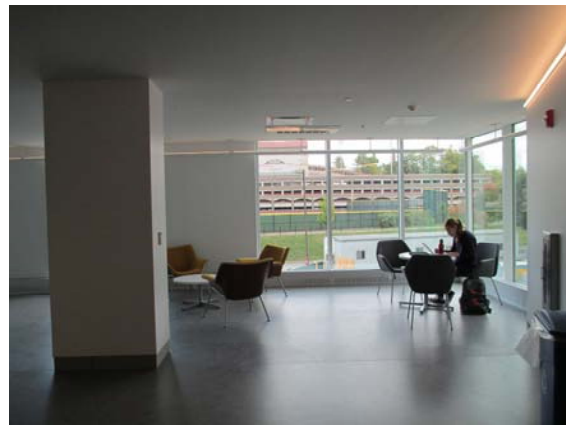
- **Functionally Enhance:**
 - Research
 - Learning
 - Student development
 - Scholarship
- **Attract and Retain Faculty**
- **Model Best Energy and Sustainability Practices**
- **Project a Forward-Looking Engineering Presence**

Master Plan Status

- **BME Expansion for New Undergraduate Program**
 - University plan using existing spaces and additions
 - Weill, Comstock and possibly Plant Science
 - First project for department hub/labs in Weill begun
- **Upson Hall Full Renovation**
 - Research areas & floors 3-5 completed and occupied
 - Floors G-2 to be completed summer 2017
- **Research, Infrastructure, and Public Space Projects**
 - PARADIM Materials by Design in Duffield Hall
 - Research Spaces (Materials, Robotics, Energy, Environment)
 - Other (Switchgear, Lecture Hall, Card Access)
- **Facility Master Plan Update Underway**
 - Informing Capital Planning
 - Focus: Hollister, CBE labs, and Rhodes rearrangements

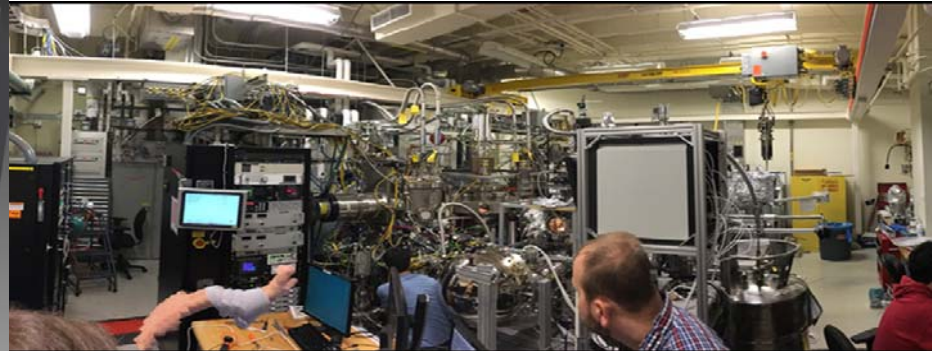
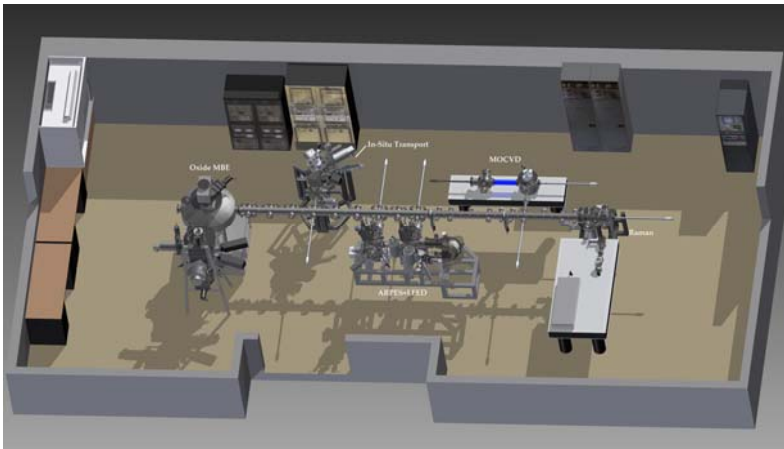
Upson Hall Full Renovation

- Hybrid labs, project teams, MAE Consolidation

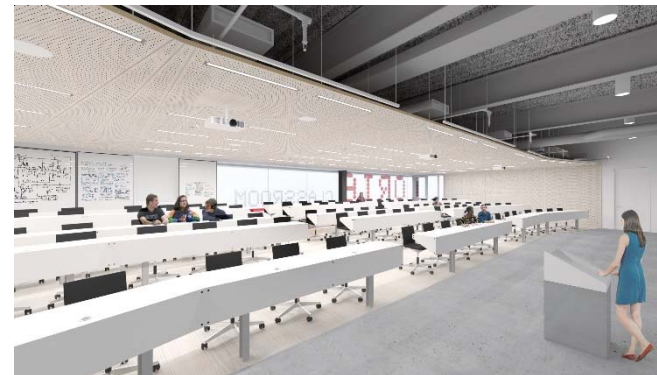


Research and Public Space Projects

- **Duffield** –PARADIM Research Center & Faculty labs.



- **Relocating ECE/CSL and ORIE Computer Classroom in Rhodes:**



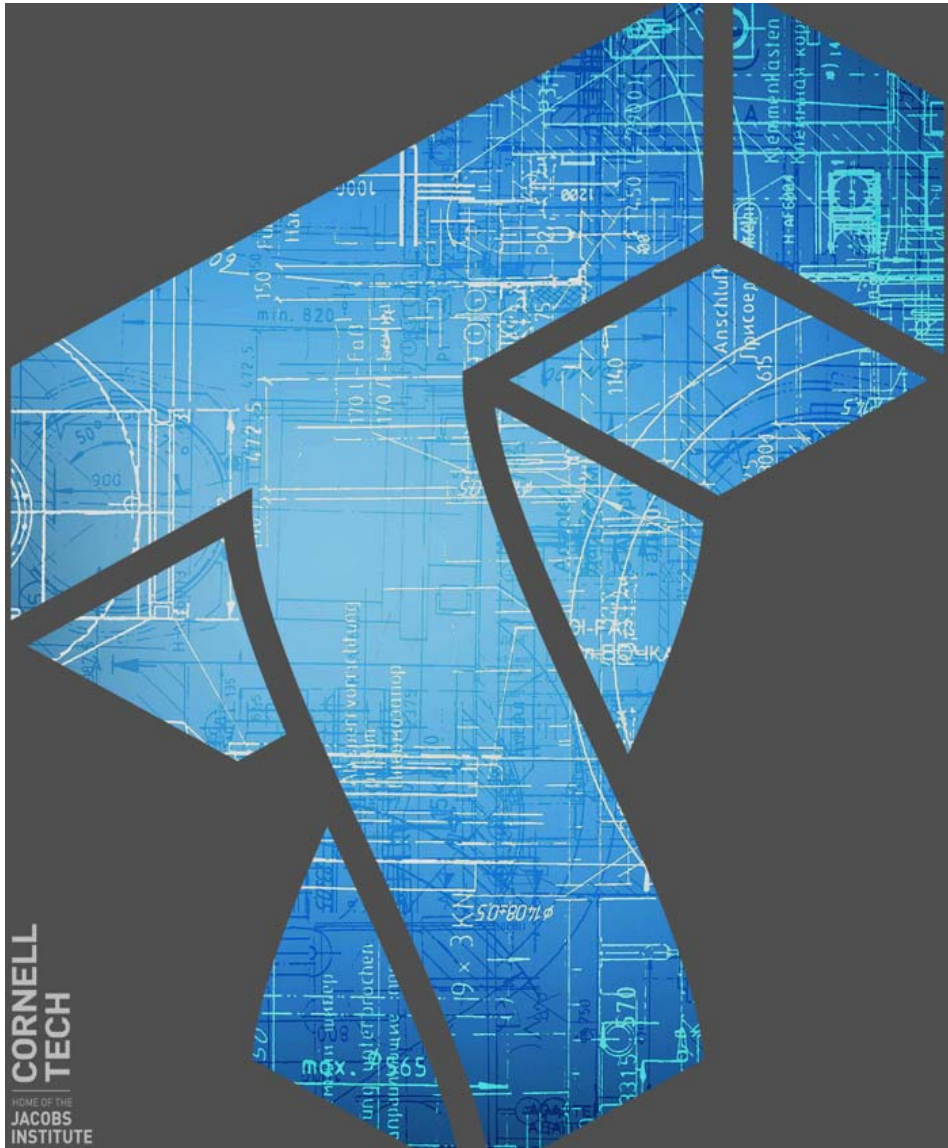
College of Engineering Fiscal Year '16 Giving Update

October, 2016



Giving Totals for Fiscal Year '16

Fiscal Year 2016 NG&C Goal	\$ 50,000,000
Fiscal Year 2016 NG&C Total	\$ 70,510,000
Fiscal Year 2016 Annual Fund Goal	\$ 2,300,000
Fiscal Year 2016 Annual Fund Total	\$ 1,910,000
ECC Active Member Participation <i>(based on FY '16)</i> <i>As of 10/11/16</i>	35 donors out of 56 active members



Cornell Tech Update October, 2016

CornellEngineering



Cornell Tech Faculty

- 29 Faculty Members
 - Engineering: 7
 - Computer Science: 11
 - Information Science and Law: 7
 - Business: 4
- Faculty include
 - Professors of the Practice: 2
 - Multi-year visiting tenure track (4 Ithaca, 1 Haifa): 5
 - Multi-year non-tenure track (Ithaca): 1
 - Permanent tenure track (17 tenured, 4 untenured): 21
 - Plan to hire about 5 additional this coming year
 - About 1/4 faculty are in Jacobs Technion-Cornell Institute
 - Jacobs faculty are mix of Cornell and Technion

Cornell Tech Students

- 33 supported Ph.D. students (some in Ithaca)
- 167 Masters students, split between:
 - M.B.A. 2017: 53
 - Connective Media 2017: 21
 - Connective Media 2018: 21
 - Health Tech 2017: 6
 - Health Tech 2018: 7
 - ORIE 2017: 7
 - LLM 2017: 13
 - CS 2017: 39

Cornell Tech – Current Programs

- Master in Computer Science
- Technion-Cornell Dual Master's Degrees in Connective Media
- Technion-Cornell Dual Master's Degrees in Health Tech
- Johnson Cornell Tech M.B.A.
- Ph.D., Computer Science
- Ph.D., Information Science
- Ph.D., Electrical and Computer Engineering
- Ph.D., Operations Research and Information
- Engineering

Cornell Tech

- **Programs Launched Fall 2016:**
 - Master in Operations Research and Information Engineering
 - Master of Laws in Law, Technology and Entrepreneurship
- **Programs Launching Fall 2017:**
 - Master in Electrical and Computer Engineering



Thank you!

Lance R. Collins
Dean of Engineering

October 20-21, 2016

CornellEngineering

