

CornellEngineering Update

Lance R. Collins
Dean of Engineering

October 29-30, 2015

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

Associate Dean for Diversity and



Mark Lewis

Associate Dean for Diversity

- Joined Cornell in 2005.
- Professor of Operations Research and Information Engineering
- Mentor of the Year (Sloan Foundation) 2003
- Presidential Early Career Award for Scientists and Engineers, National Science Foundation, 2002
- Degrees received
 - B.S. 1992 in Mathematics and B.A. in Political Science, Eckerd College
 - M.S. 1995 in Theoretical Statistics, Florida State University
 - Ph.D. 1998 in Industrial and Systems Engineering, Georgia Institute of Technology
- Research Focus – Stochastic Processes with an emphasis on queueing theory.

Director of Civil and Environmental Engineering



Linda Nozick
Director of Civil and
Environmental Engineering

- Joined Cornell in 1992.
- Professor of Civil and Environmental Engineering
- Member, Nuclear Waste Technical Review Board (appointed by President Obama) 2011
- Presidential Early Career Award for Scientists and Engineers (PECASE) 1997
- Degrees received
 - B.S. 1989 in Systems Analysis and Engineering
George Washington University
 - M.S. 1990 in Systems Engineering
University of Pennsylvania
 - Ph.D. 1992 in Systems Engineering
University of Pennsylvania
- Research Focus – development of mathematical models for use in the management of complex systems.

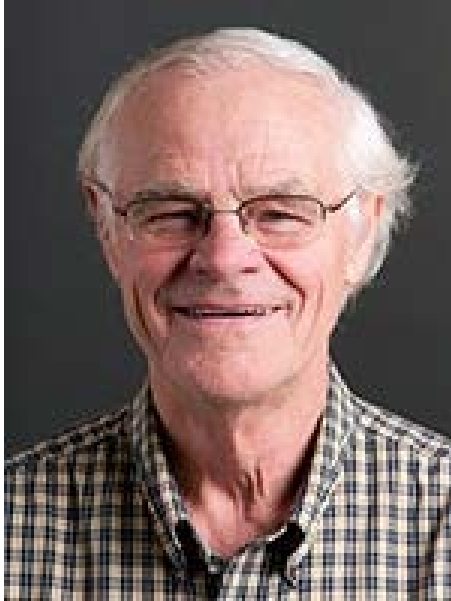
Director of Materials Science and Engineering



Bruce van Dover
Director of Materials Science
and Engineering

- Joined Cornell in 2002.
- Professor of Materials Science and Engineering
- Fellow, American Physical Society
- More than 35 patents issued.
- "Highly Cited--Physics". Ranked 29th in the world for the period 1981 - 1997. (Thomson ISI)
- Degrees received
 - B.S. (Engineering/Engineering Physics), Princeton University, 1974
 - M.A. (Applied Physics), Stanford University, 1975
 - Ph.D. (Physics), Stanford University, 1980
- Research Focus – Growth and properties of catalytic, magnetic, dielectric, superconducting, and optical thin films.

Chair of Biological and Environmental Engineering



Michael Walter
Director of Biological and
Environmental Engineering

- Joined Cornell in 1974.
- Professor of Biological and Environmental Engineering
- Recipient of Carpenter Advising Award (2010)
- Fellow (2004) American Society of Agricultural and Biological Engineering
- Degrees received
 - B.S. 1968, University of Illinois
 - M.S. 1970, University of Illinois, Urbana
 - Ph.D. 1974, University of Wisconsin, Madison
- Research Focus – Hydrologic, hydraulic, and soil water information applied to rural water management problems such as erosion, drainage, water quality, and water supplies.

Dean of Computing and Information Sciences



[Greg Morrisett](#)

Dean of Computing and
Information Sciences

- Professor of Computer Science
- Fellow, Association of Computing Machinery (ACM)
- Previously, the Allen B. Cutting Chair in Computer Science at Harvard University from 2004-2015.
- Before Harvard, Morrisett spent eight years on the faculty of Cornell's Computer Science Department, which he now rejoins.
- Degrees received
 - B.S. (Mathematics & Computer Science) University of Richmond, 1989
 - M.S. 1991 and Ph.D. 1995 (Computer Science) Carnegie Mellon University, 1995
- Research Focus – application of programming language technology for building secure, reliable, and high performance software systems.

New Faculty

(Arrivals Spring 2015)



Christian Danescu-Niculescu-Mizil
Asst. Professor, CS



Iwijn De Vlamincx
Asst. Professor, BME



Grace Xing
Professor, ECE/MSE



Debdeep Jena
Professor, ECE/MSE

New Faculty

(Arrivals Fall 2015)



[Qing Zhao](#)
Professor, ECE



[Jamol Pender](#)
Asst. Professor, ORIE



[Nicole Benedek](#)
Asst. Professor, MSE



[Silvia Ferrari](#)
Professor, MAE



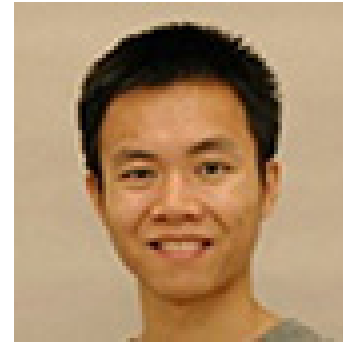
[John Albertson](#)
Professor, CEE

New Faculty

(Arrivals Fall 2015)



[Kilian Weinberger](#)
Asst. Professor, CS



[Yudong Chen](#)
Asst. Professor, ORIE



[Elaine Shi](#)
Assoc. Professor, CS



[Siddhartha Banerjee](#)
Asst. Professor, ORIE

New Cornell Tech Faculty

(Arrivals Spring - Fall 2015)



Yoav Artzi

*Asst. Professor
CS/Cornell Tech*



Huseyin Topaloglu

*Professor
ORIE/Cornell Tech*



Vitaly Shmatikov

*Professor
CS/Cornell Tech*



Thomas Ristenpart

*Assoc. Professor
CS/Cornell Tech*

Major Faculty Awards

- **Fellow, American Academy of Arts and Sciences**
 - Joseph Halpern (CS)
- **Fellow, Biomedical Engineering Society**
 - Michael King (BME)
- **Fellow, American Physical Society**
 - Craig Fennie (AEP)
- **Fellow, American Society of Mechanical Engineers (ASME)**
 - Stephen Pope (MAE)

Major Faculty Awards

- **Fellow, European Association for Theoretical Computer Science (EATCS)**
 - Dexter Kozen (CS)
- **Fellow, Polymeric Materials: Science and Engineering (PMSE)**
 - Uli Wiesner (MSE)
- **Fellow, American Geophysical Union (AGU)**
 - Geoff Abers (EAS)
- **Fellow, American Institute of Chemical Engineers (AIChE)**
 - Lance Collins

Major Faculty Awards

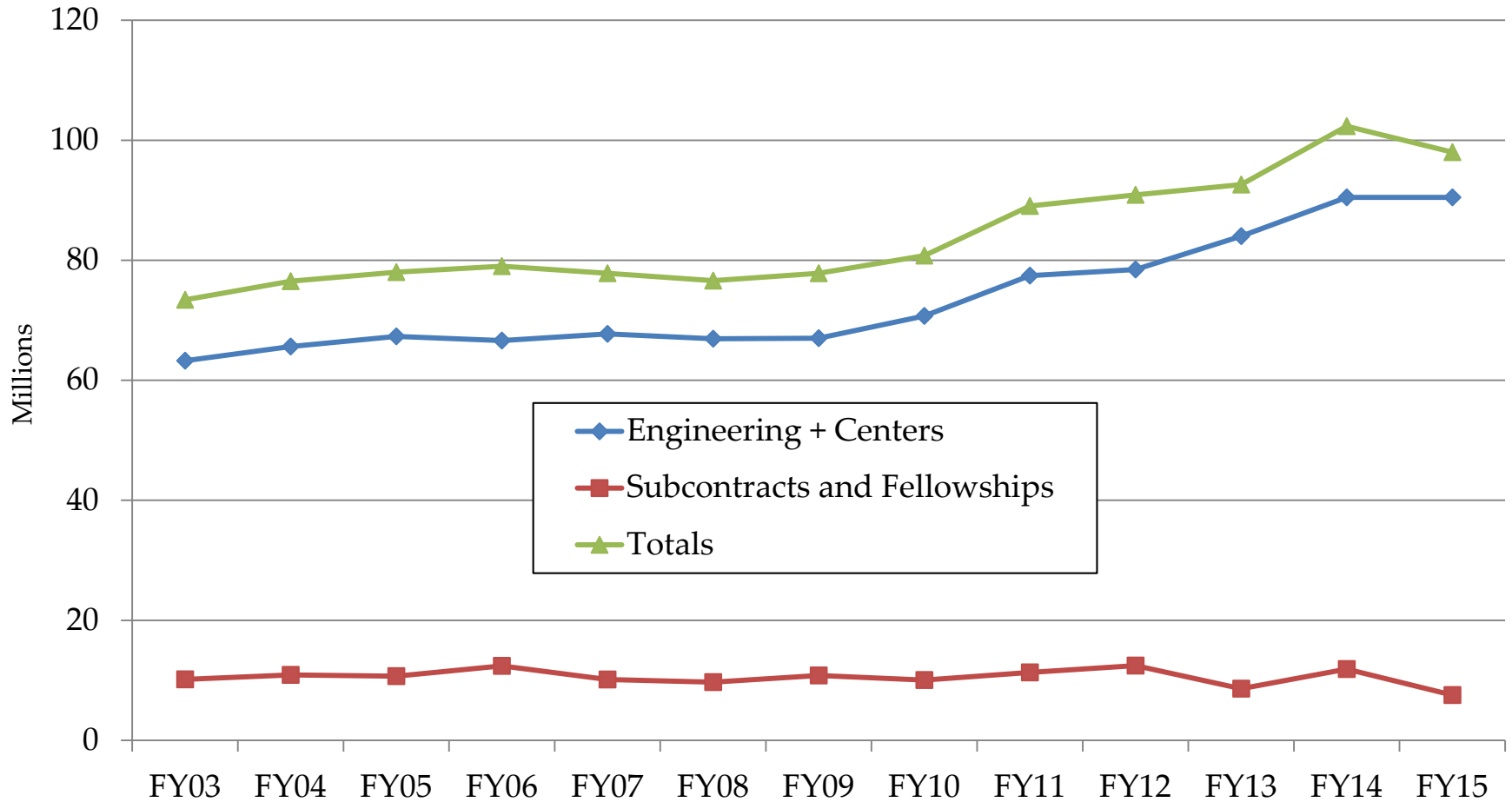
- **NSF CAREER Award**
 - C. Lindsay Anderson (BEE)
 - Eve Donnelly (MSE)
 - Nozomi Nishimura (BME)
- **Cook Award**
 - Susan Daniel (CBE)
- **Pioneer of Diversity Award, American Institute of Chemical Engineers (AIChE)**
 - Lance Collins

\$50 Million Gift Creates Meinig School of Biomedical Engineering

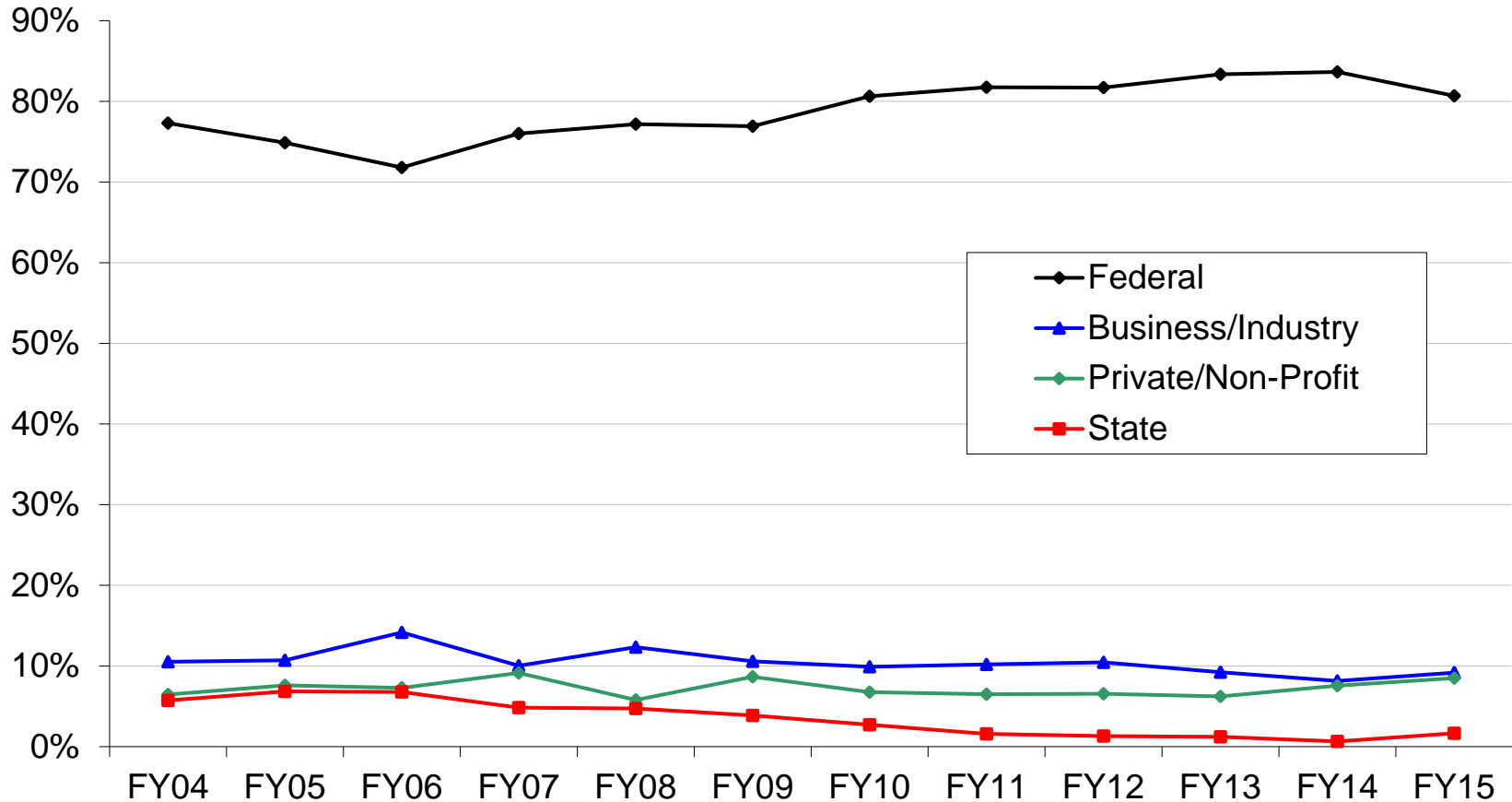
- **Gift Will Help Expand Collaborations Between Weill Cornell and Meinig School**
- The gift, from Nancy Meinig '62 and Peter Meinig '61, along with daughters Anne '87, Kathryn, MBA '93, and Sarah and their own families, represents the largest single philanthropic commitment by individual donors to one of the university's colleges in Ithaca.
- \$50 million endowment will expand and elevate it as the Nancy E. and Peter C. Meinig School of Biomedical Engineering.
- In addition to providing resources to hire world class faculty and support the recently launched undergraduate major in biomedical engineering, the Meinig family's gift will enhance partnerships between BME in Ithaca and researchers at Weill Cornell Medical College, the School of Veterinary Medicine and Cornell Tech.

Research and Graduate Studies Highlights October, 2015

Research Expenditures



Percent Distribution of Research Expenditures



Engineering-Led Large Center Proposals



Advanced Materials: \$25M NSF Materials Innovation Platform user facility for theory, computation, bulk crystals and novel characterization. *PI: Darrell Schlom, MSE*



Advanced Materials: \$10M center to apply nanotechnology research in cancer care, funded by the National Cancer Institute and the Memorial Sloan Kettering Cancer Center. *PI: Uli Wiesner, MSE*



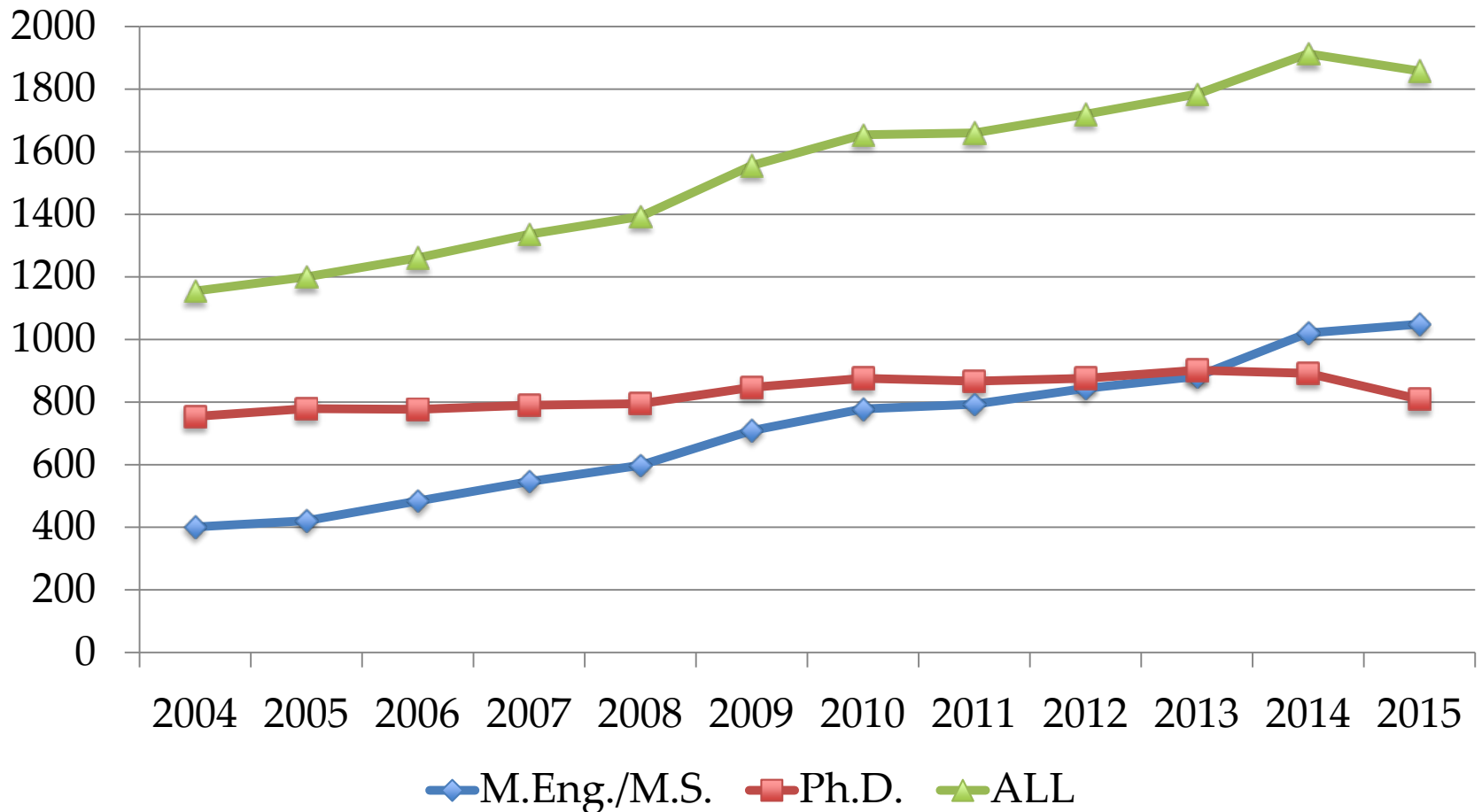
Bioengineering: \$11M NIH Physical Sciences-Oncology Center to advance understanding and treatment of cancer through physical sciences research. *PI: Claudia Fischbach, BME*



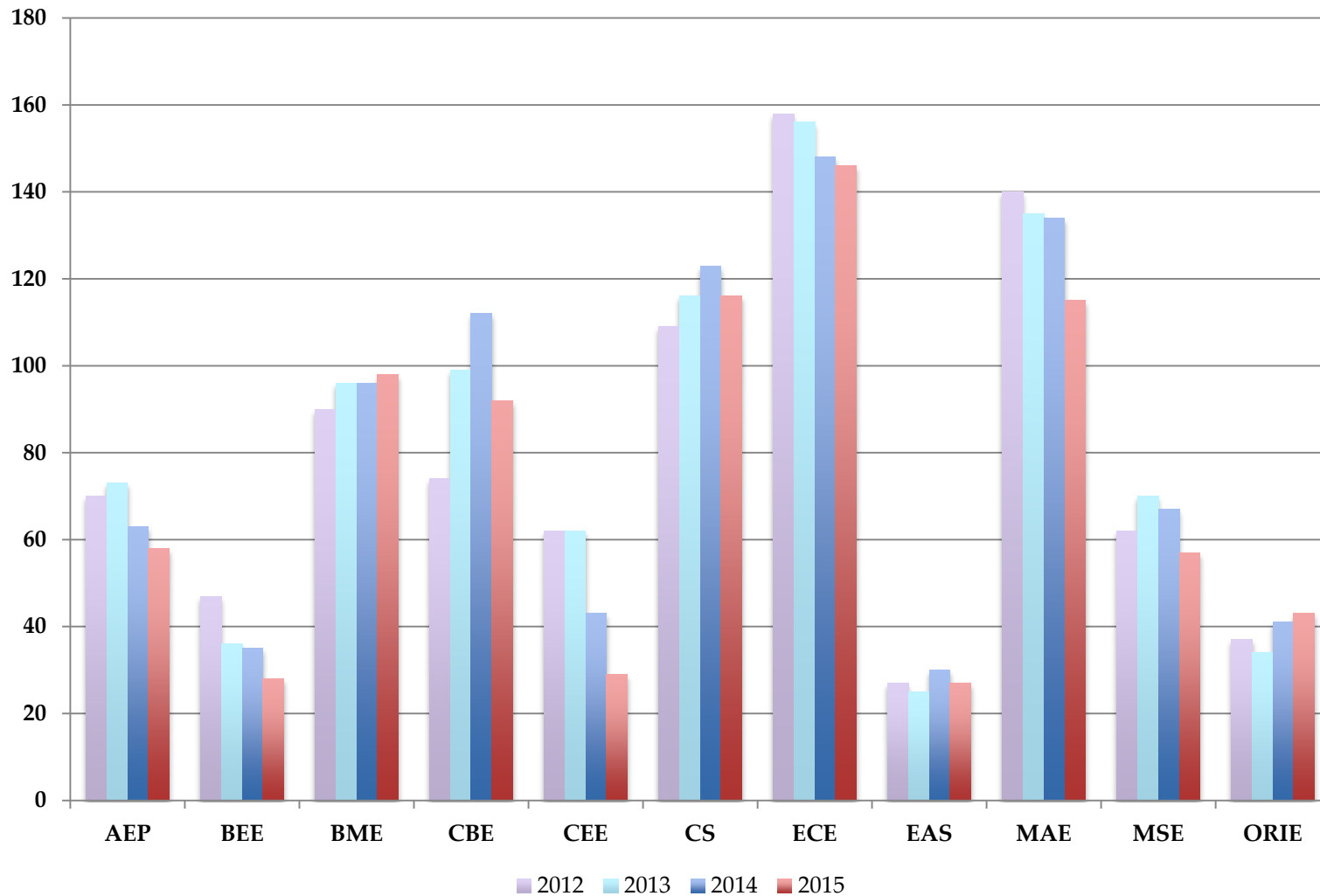
Energy and the Environment: \$18M NSF ERC to pioneer new materials for high-performance energy storage, water purification, and carbon capture. *Co-PIs: Lynden Archer, CBE and Emmanuel Giannelis, MSE*



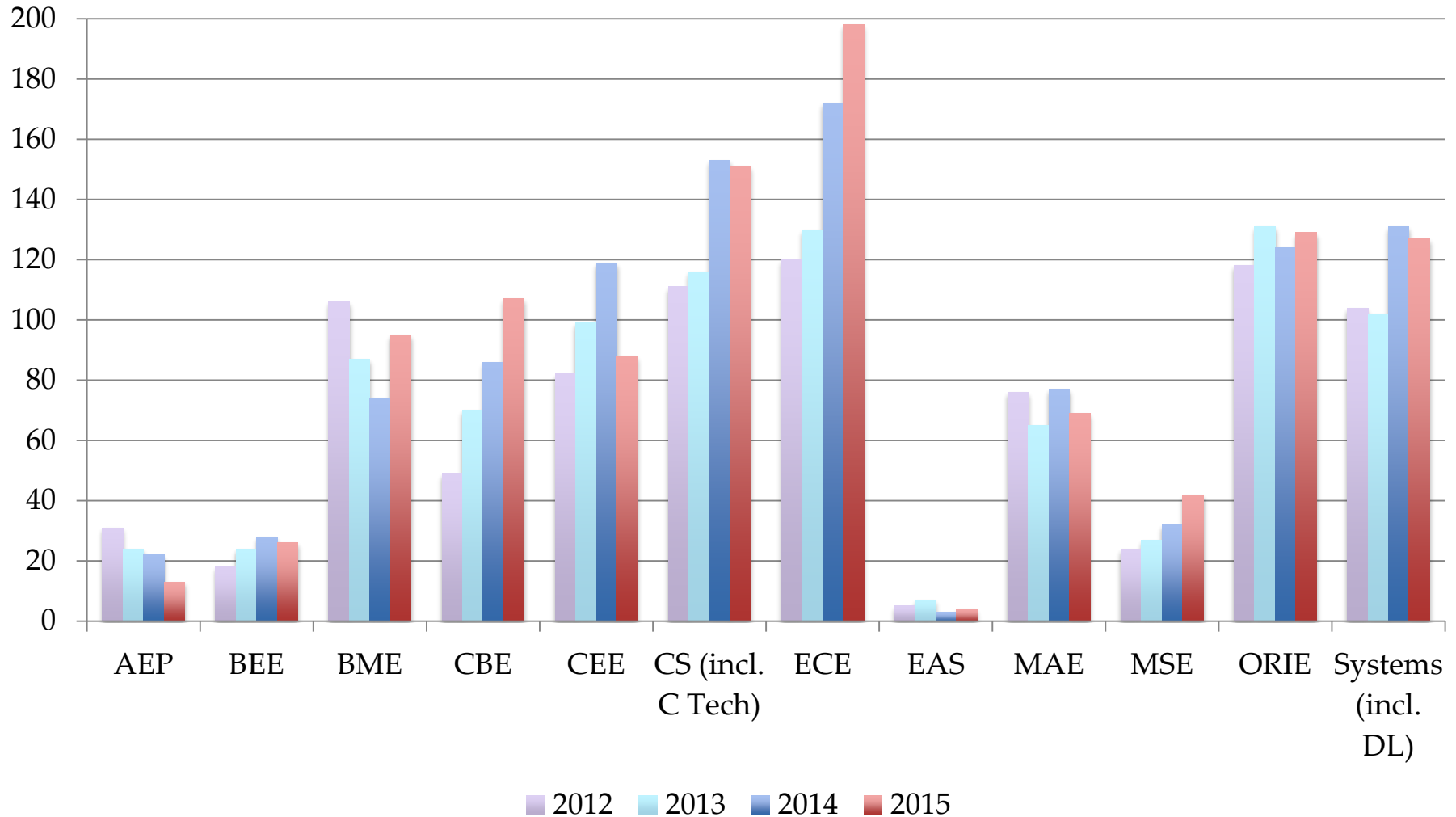
Graduate Student Enrollment



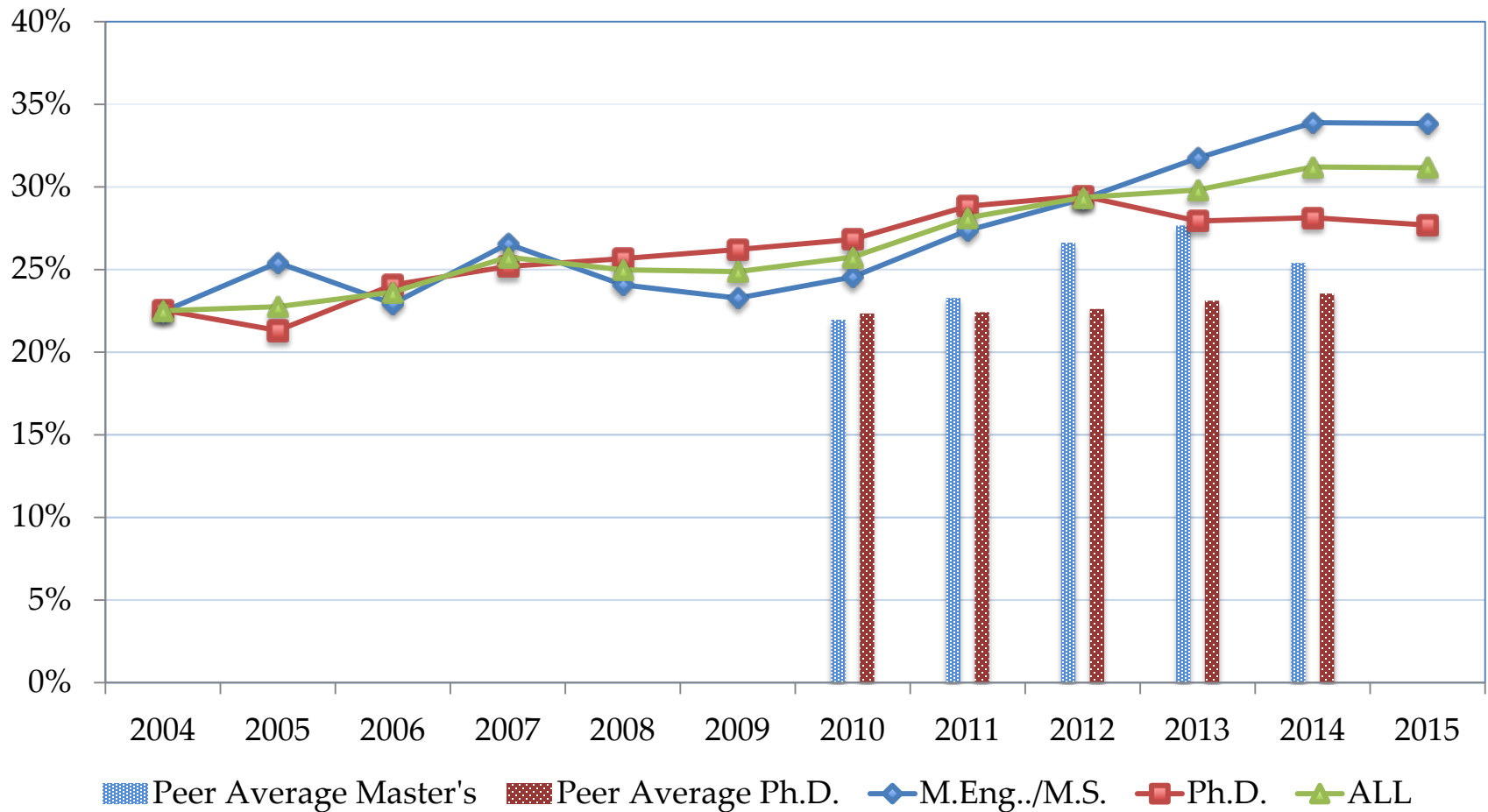
Ph.D. Enrollment by Field



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

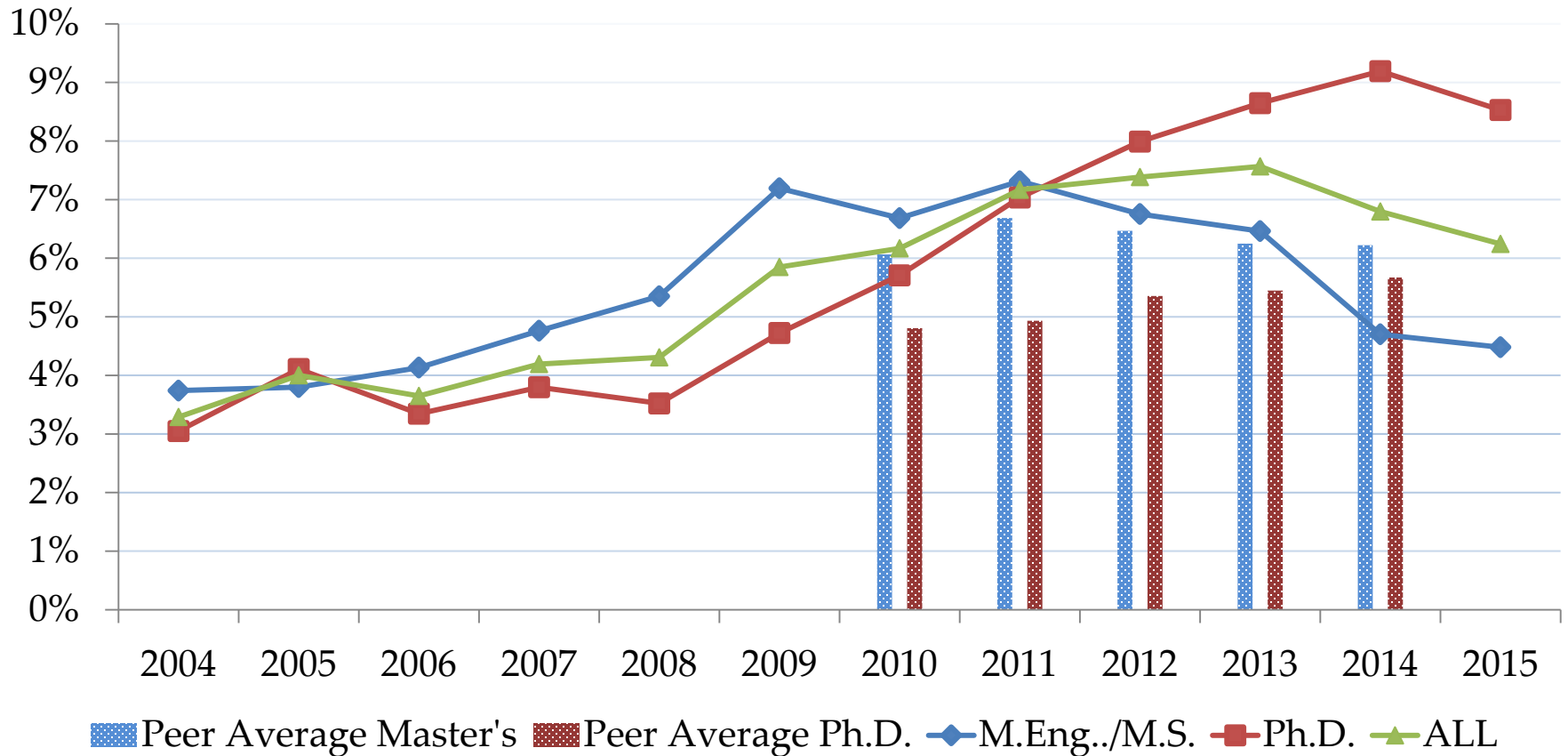


Graduate Student Enrollment Women



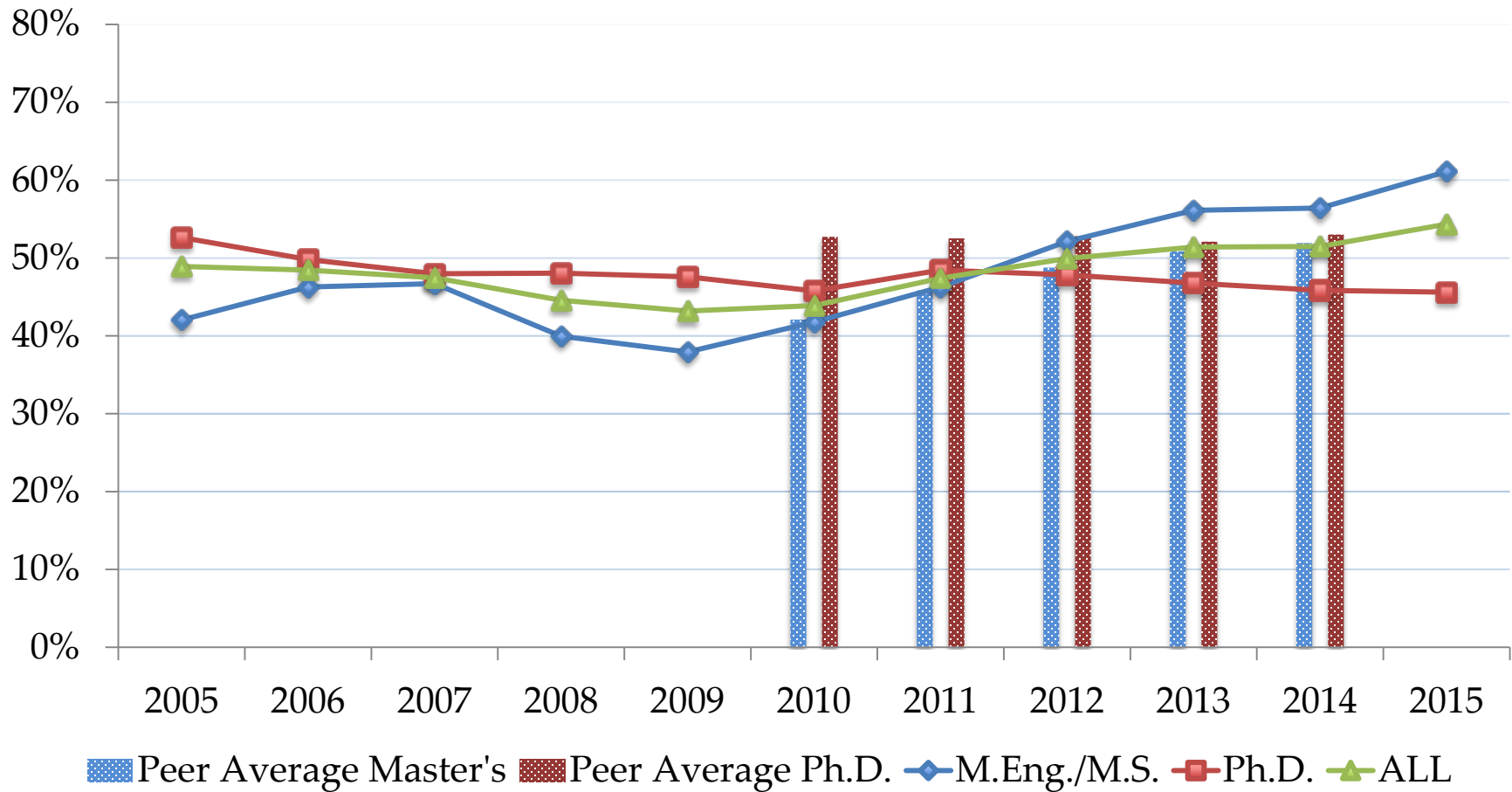
* Peers: Carnegie, Columbia, Georgia Tech, MIT, Princeton, Purdue, Stanford, UT Austin, Berkeley, UI-Urbana Champaign, Michigan
Source for peer data: ASEE data mining tool

Graduate Student Enrollment 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

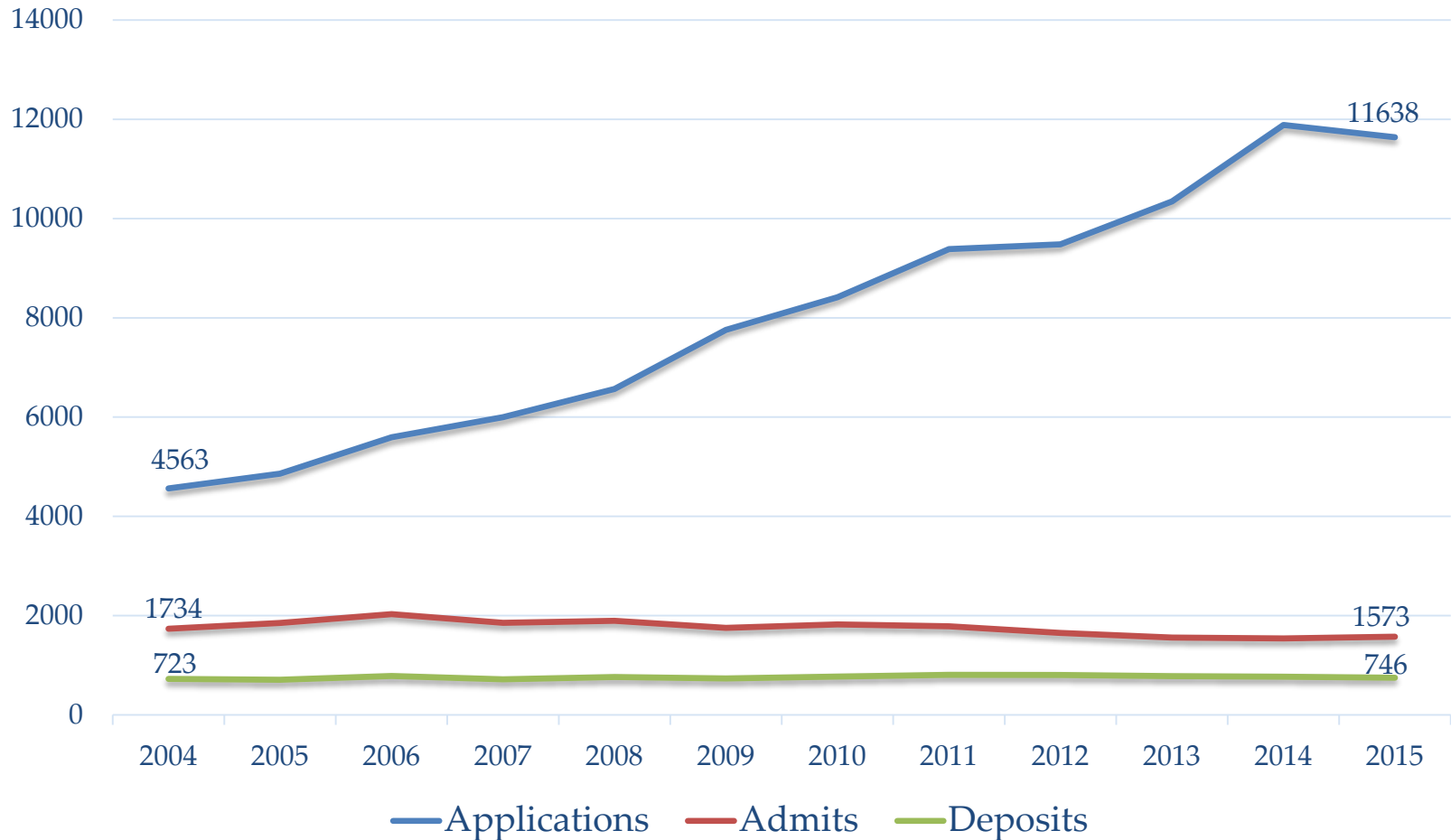
Graduate Student Enrollment International



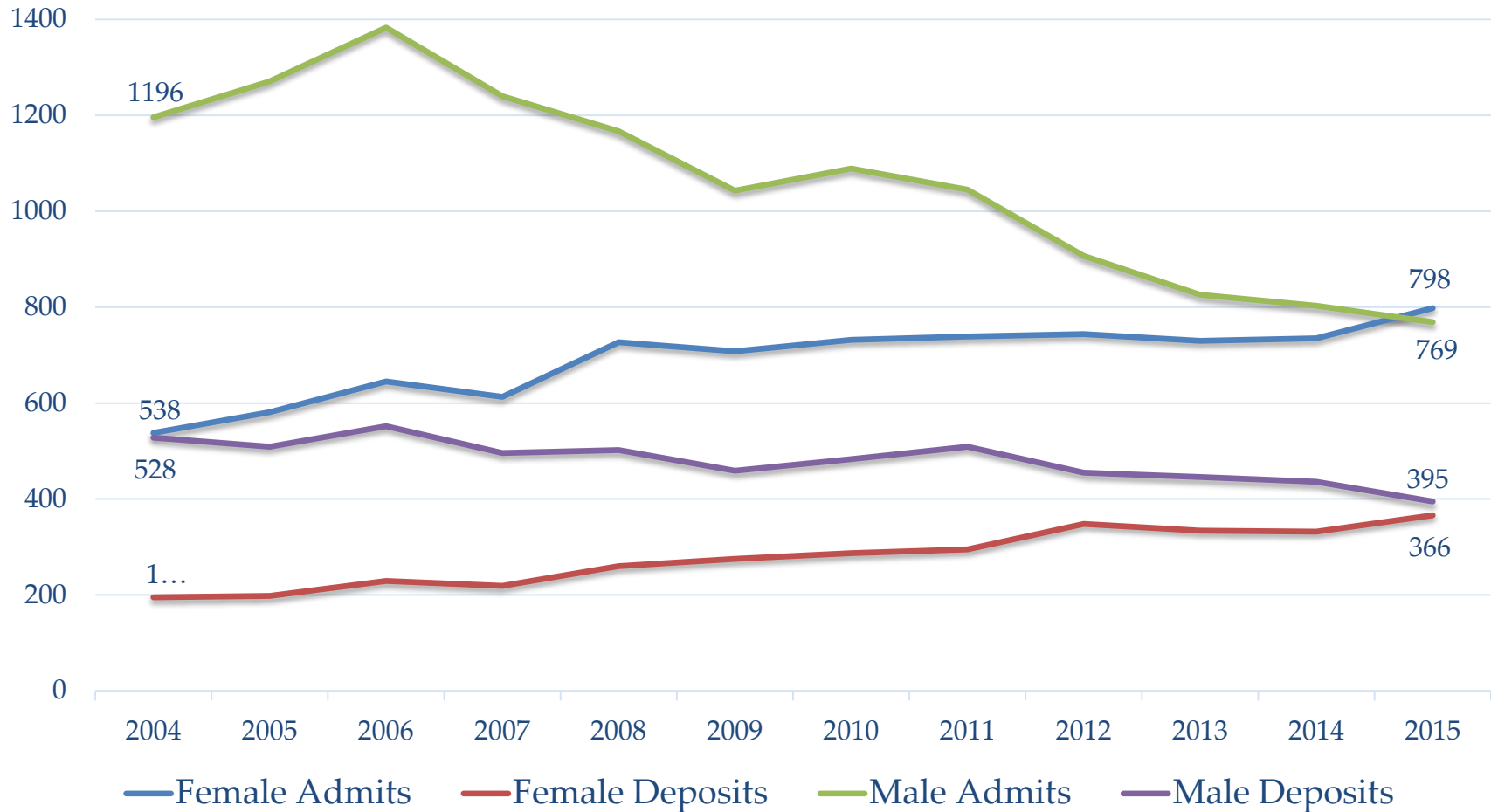
* Peers: Carnegie, Columbia, Georgia Tech, MIT, Princeton, Purdue, Stanford, UT Austin, Berkeley, UI-Urbana Champaign, Michigan
Source for peer data: ASEE data mining tool

Admissions Highlights October, 2015

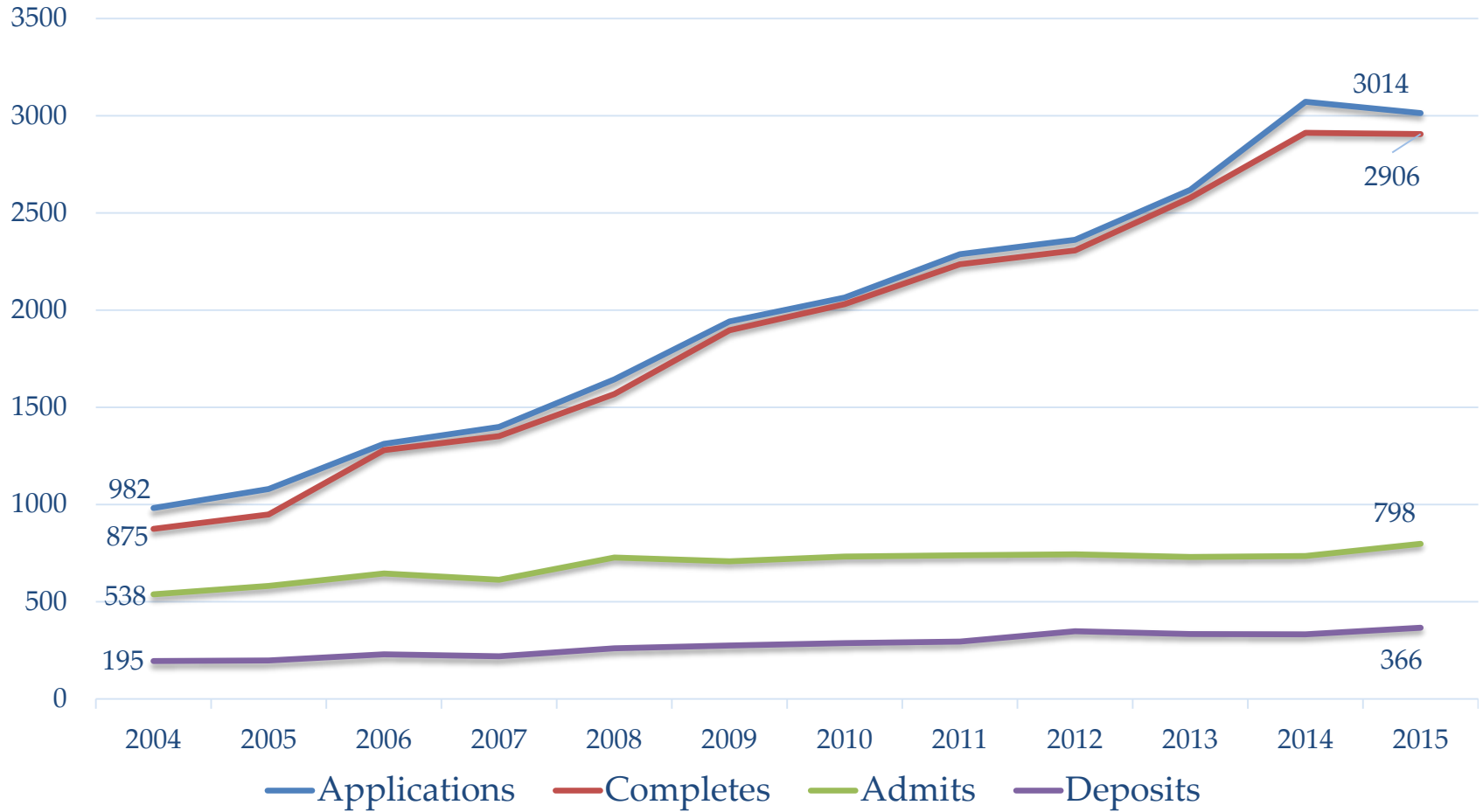
UG Engineering Applications, Admits, Deposits: 2004 - 2015



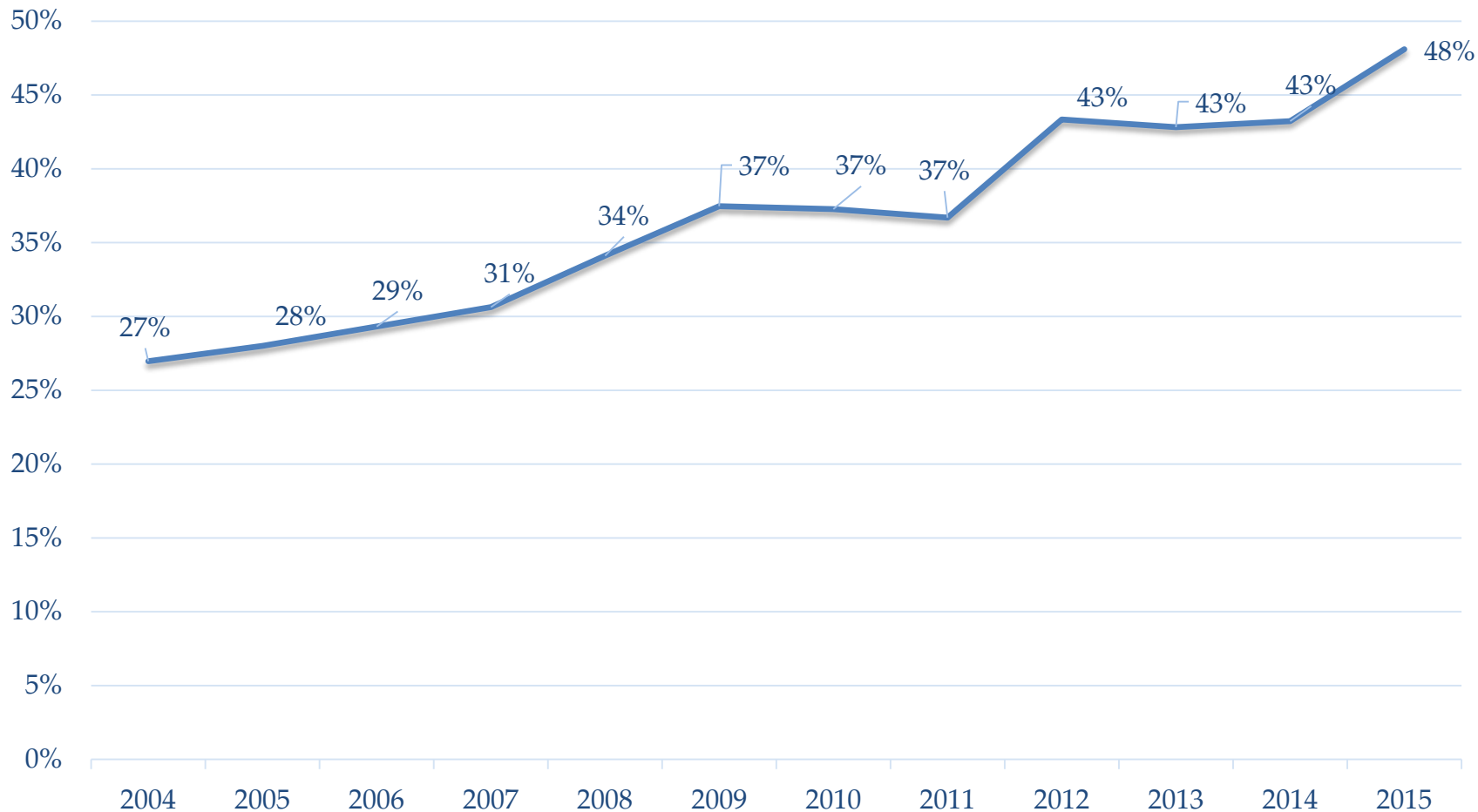
UG Female and Male Admits and Deposits: 2004 - 2015



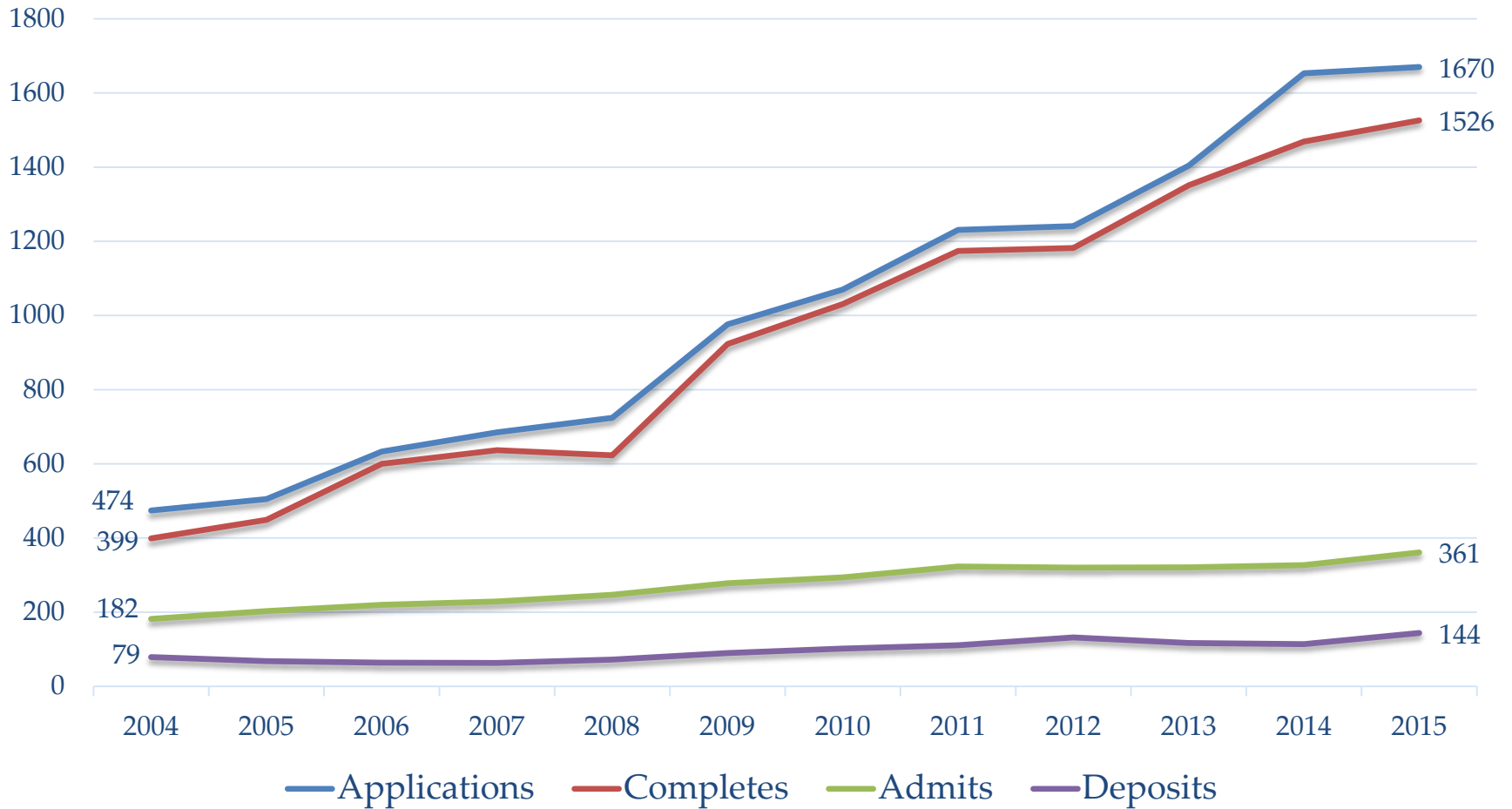
UG Women Applications for Admission: 2004 - 2015



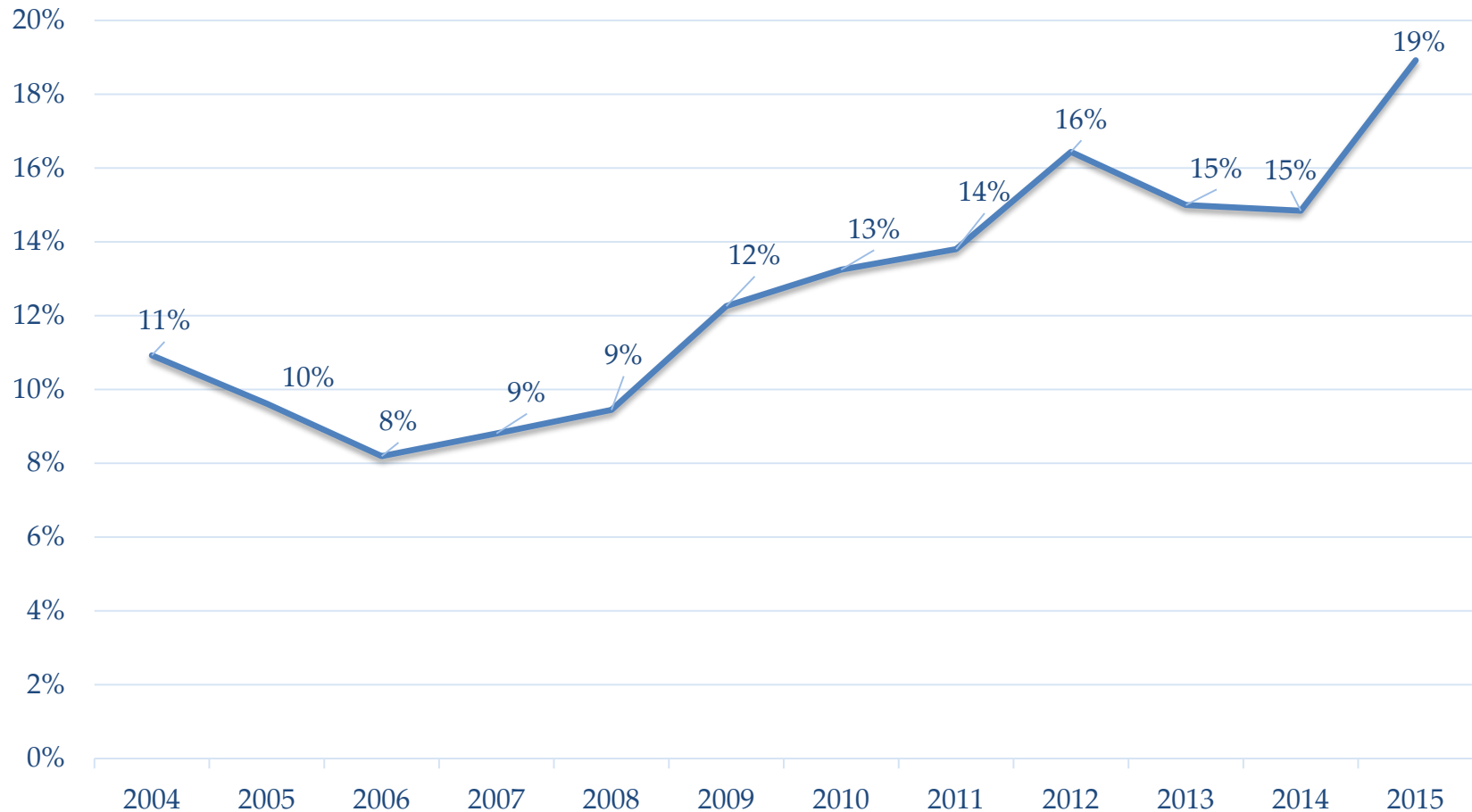
Women as % of the Total First-Year EN Class: 2004 - 2015



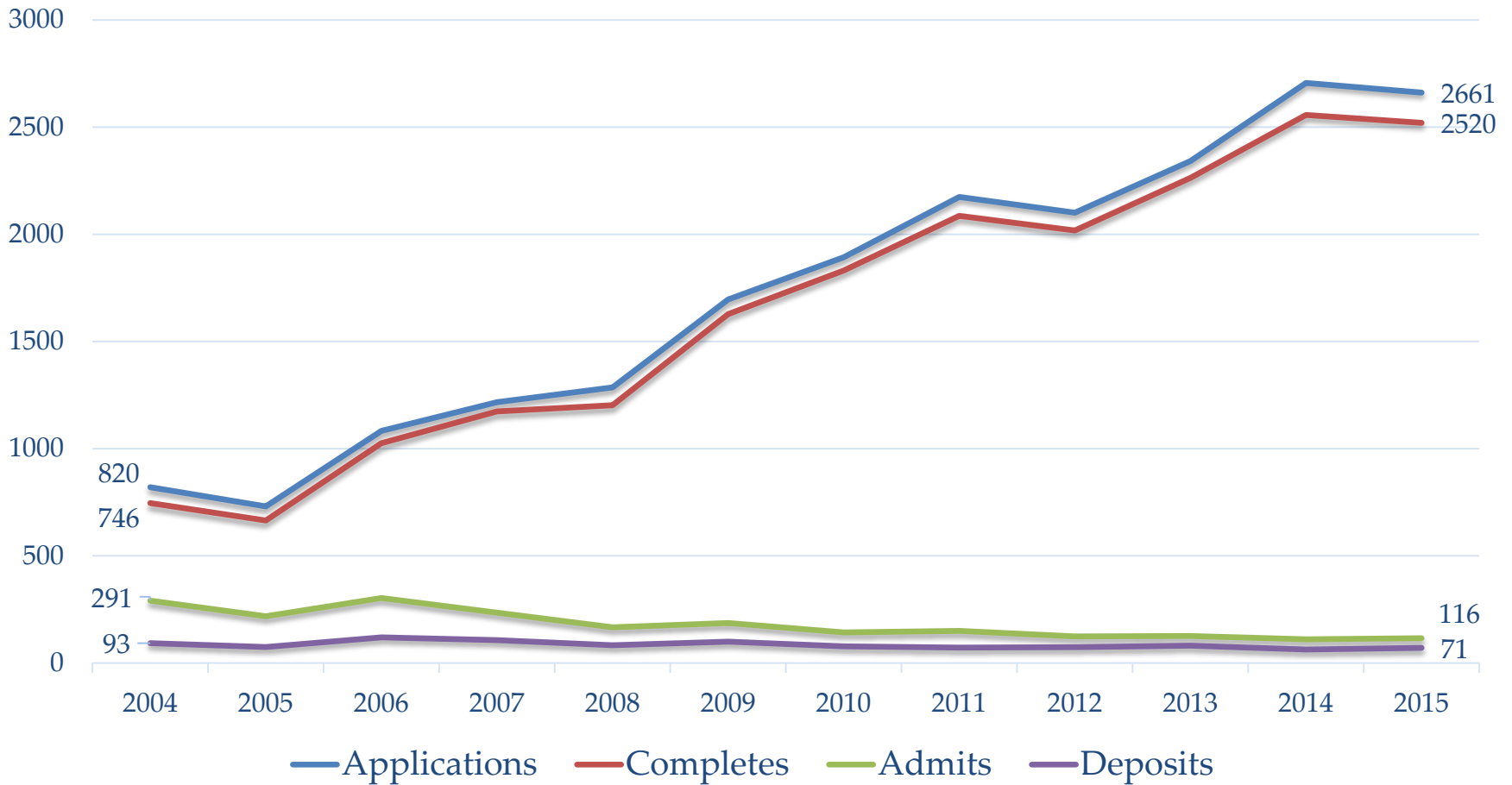
Total UG URM Applications for Admission: 2004 - 2015



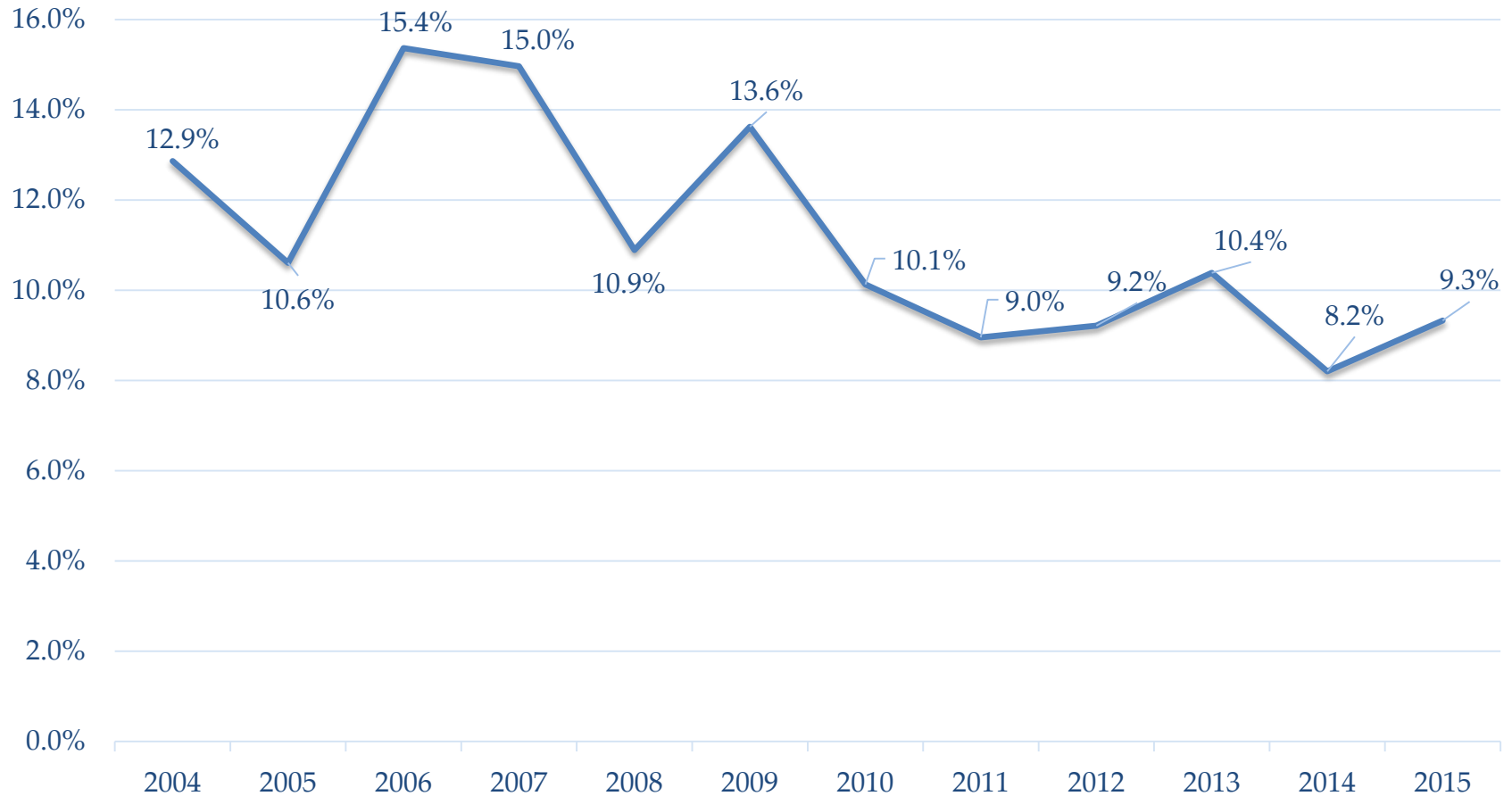
URM as a % of the Total First-Year EN Class: 2004 - 2015



Total UG International Applications: 2004 - 2015



Total UG Intl as a % of the First-Year EN Class

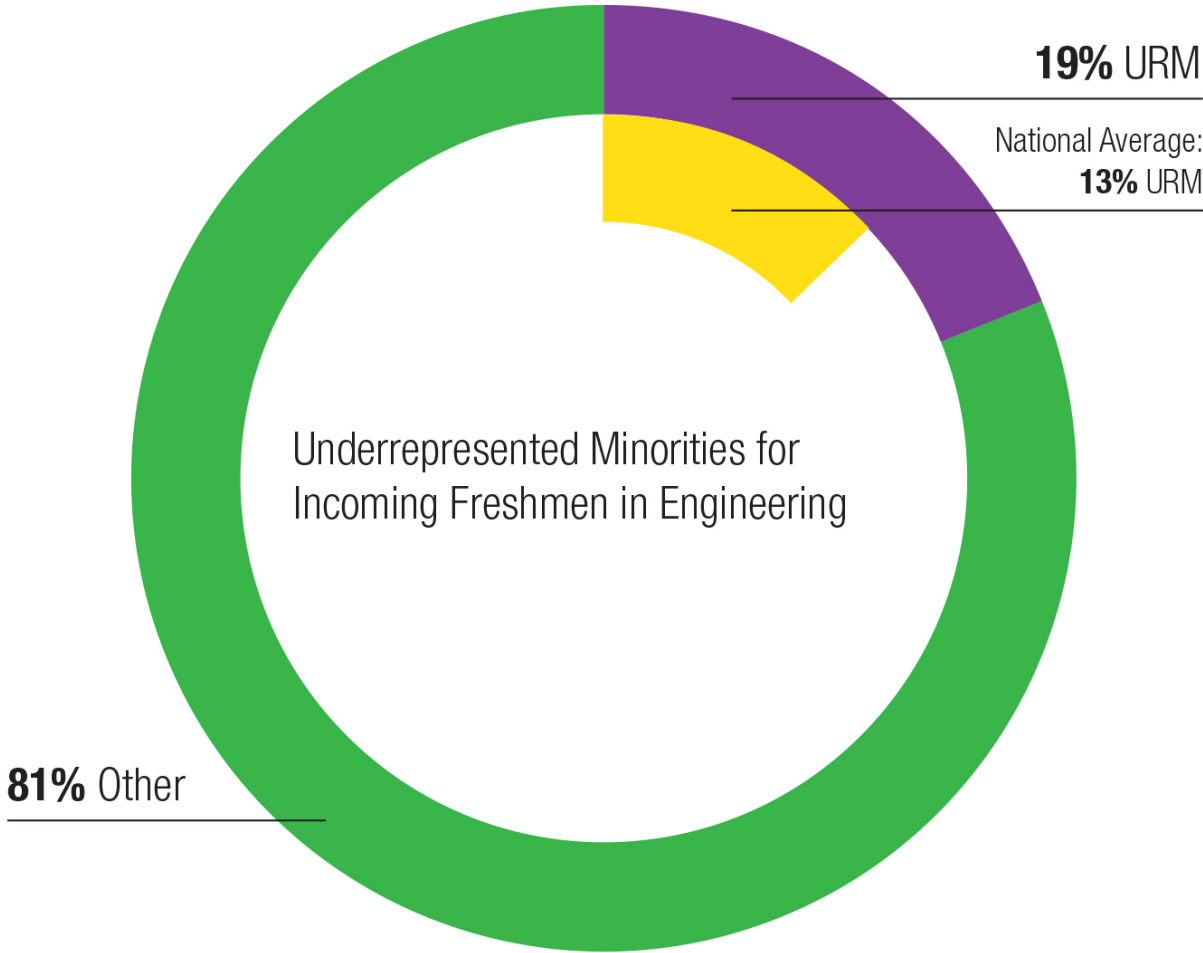


DPE Highlights October, 2015

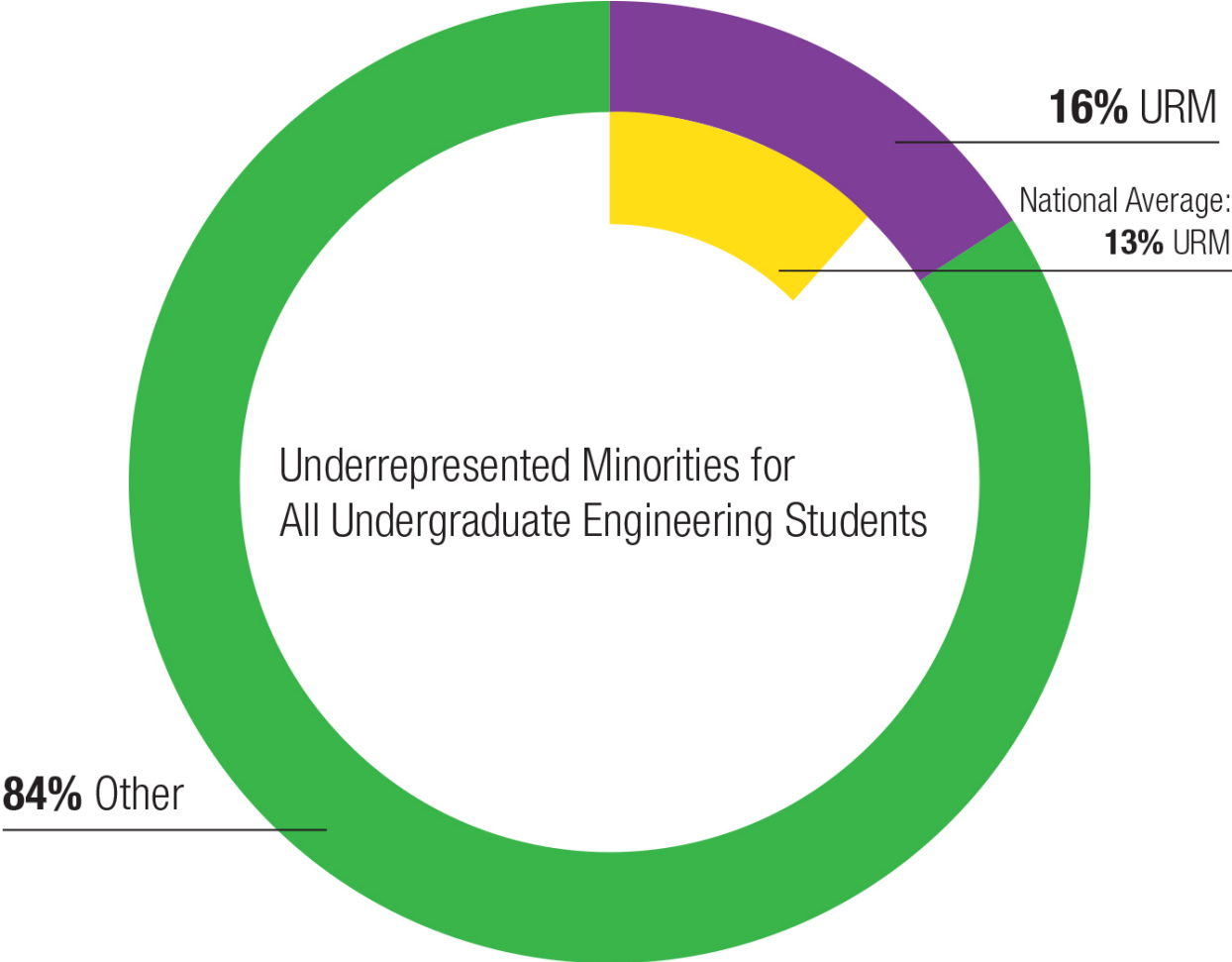
2015-'16 New Initiatives

- **Faculty engagement**
 - **Community building dinners:** New faculty across disciplines gather at the Associate Dean for Diversity and Faculty Development's house
 - Formalized the **Ephraim Garcia Engineering Society:** Faculty interest group focused on creating/maintaining an inclusive environment for URM faculty
- **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)
 - **Summer Success Symposium:** One day symposium that provides workshops related to successful early career decision-making in industry and academia

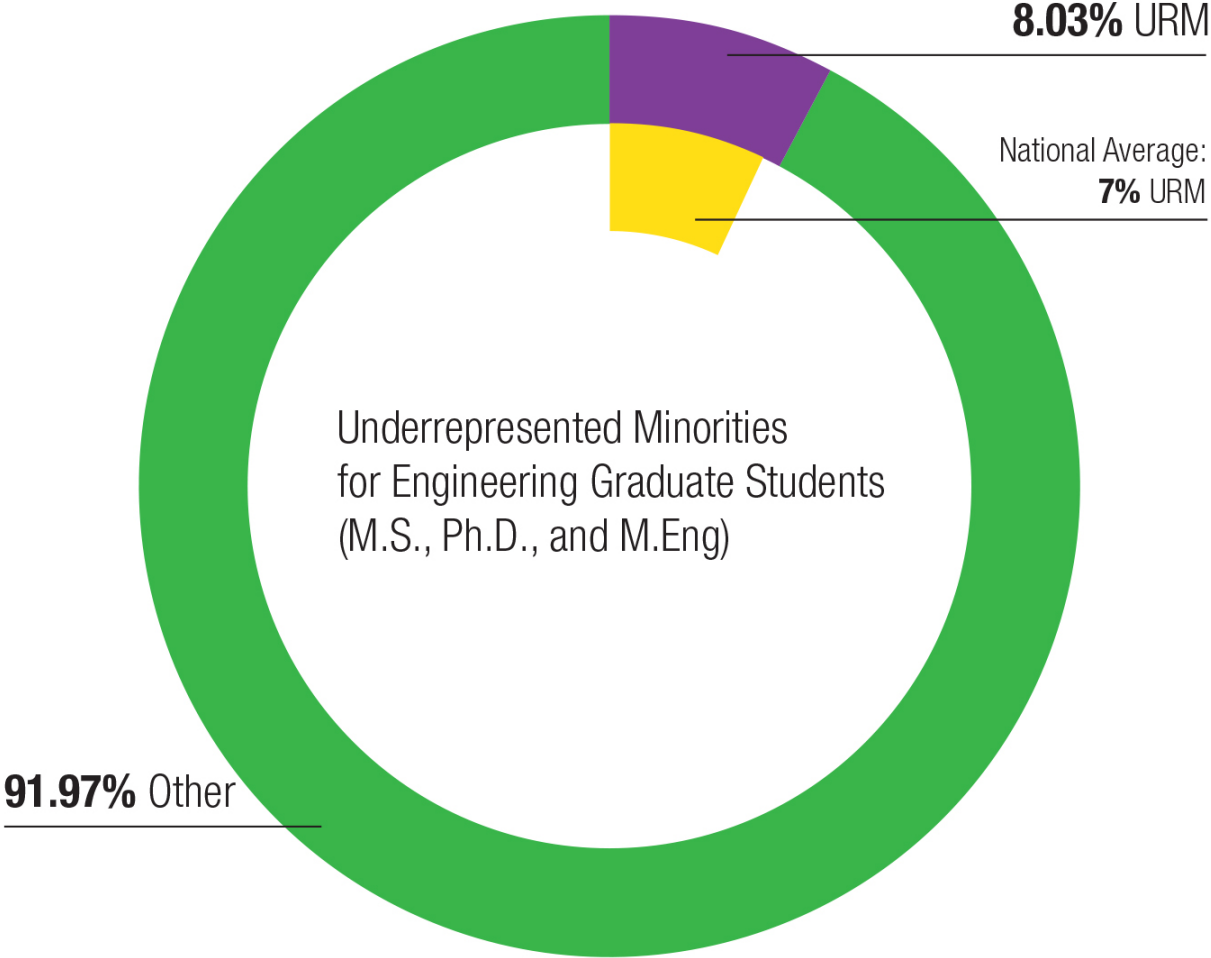
URM Incoming Freshmen in Engineering



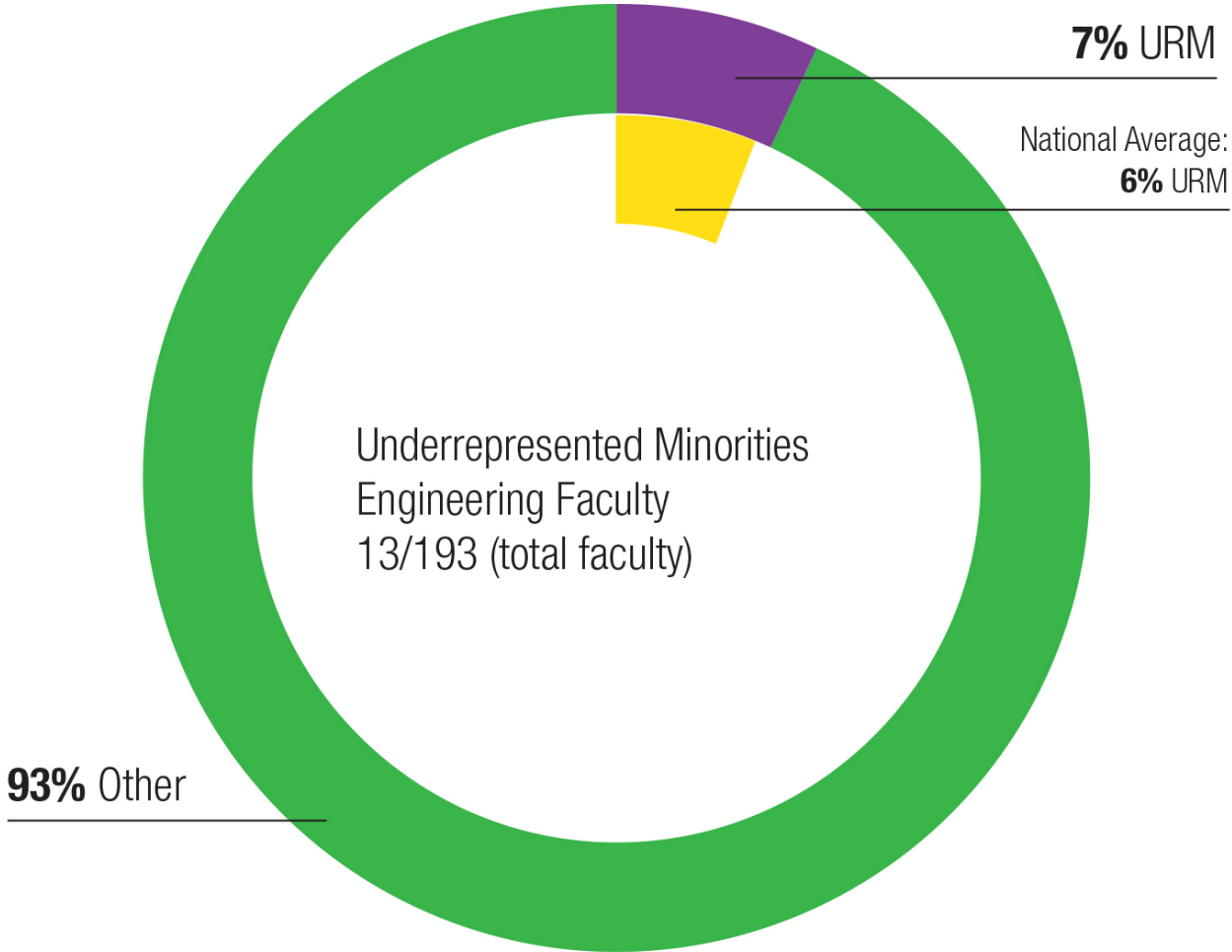
URM Undergraduate Engineering Students



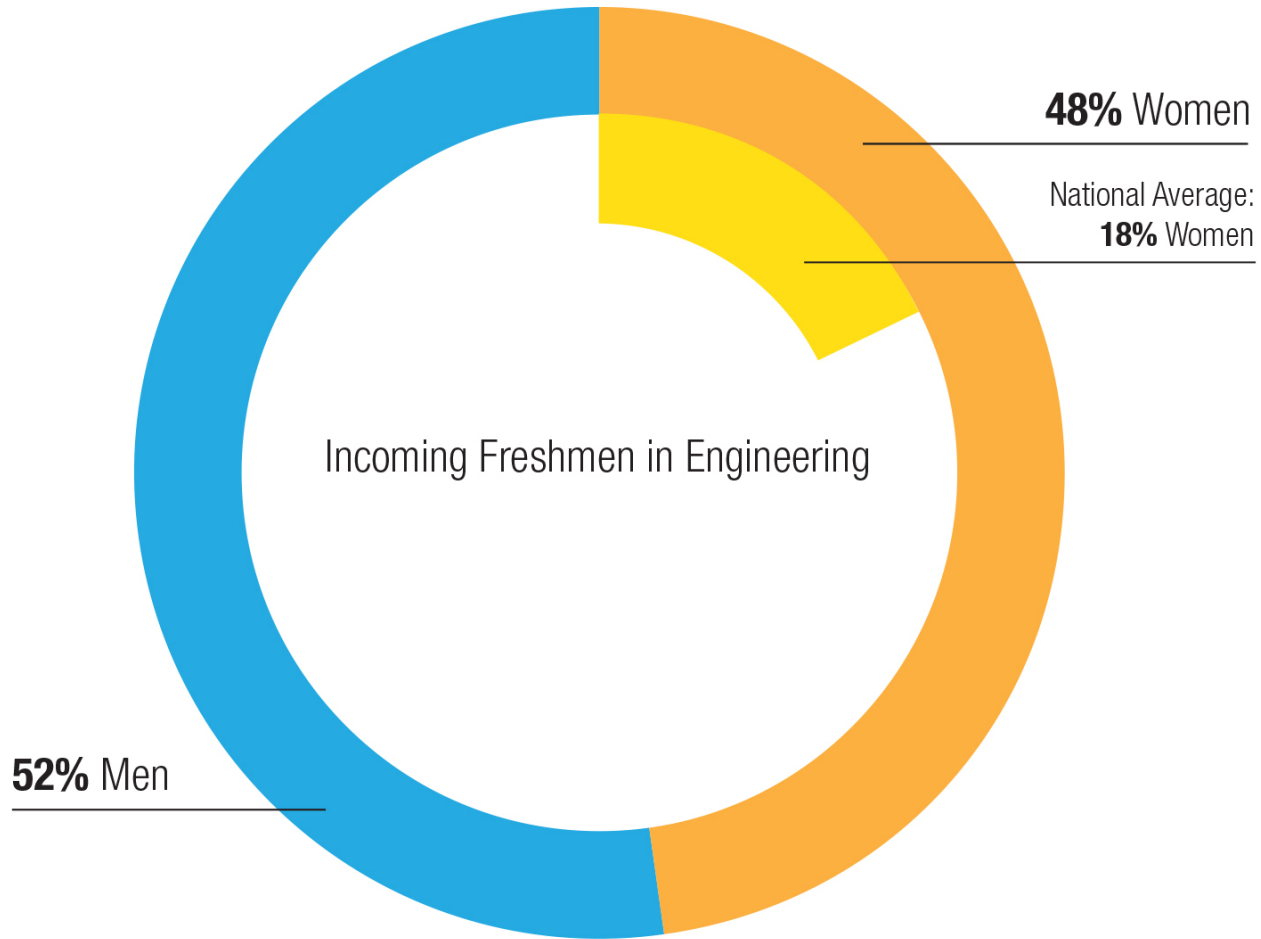
URM Engineering Graduate Students



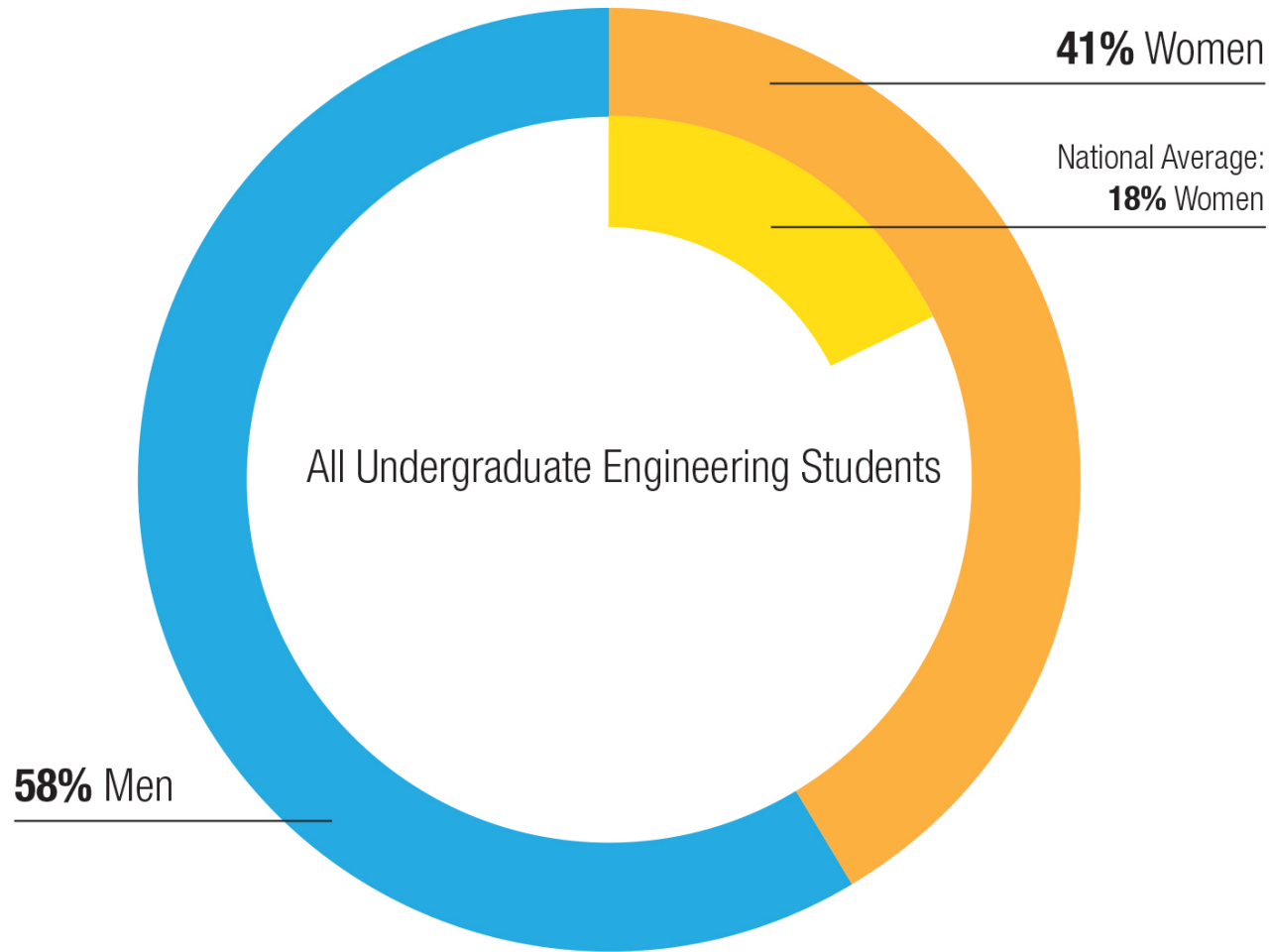
URM Engineering Faculty



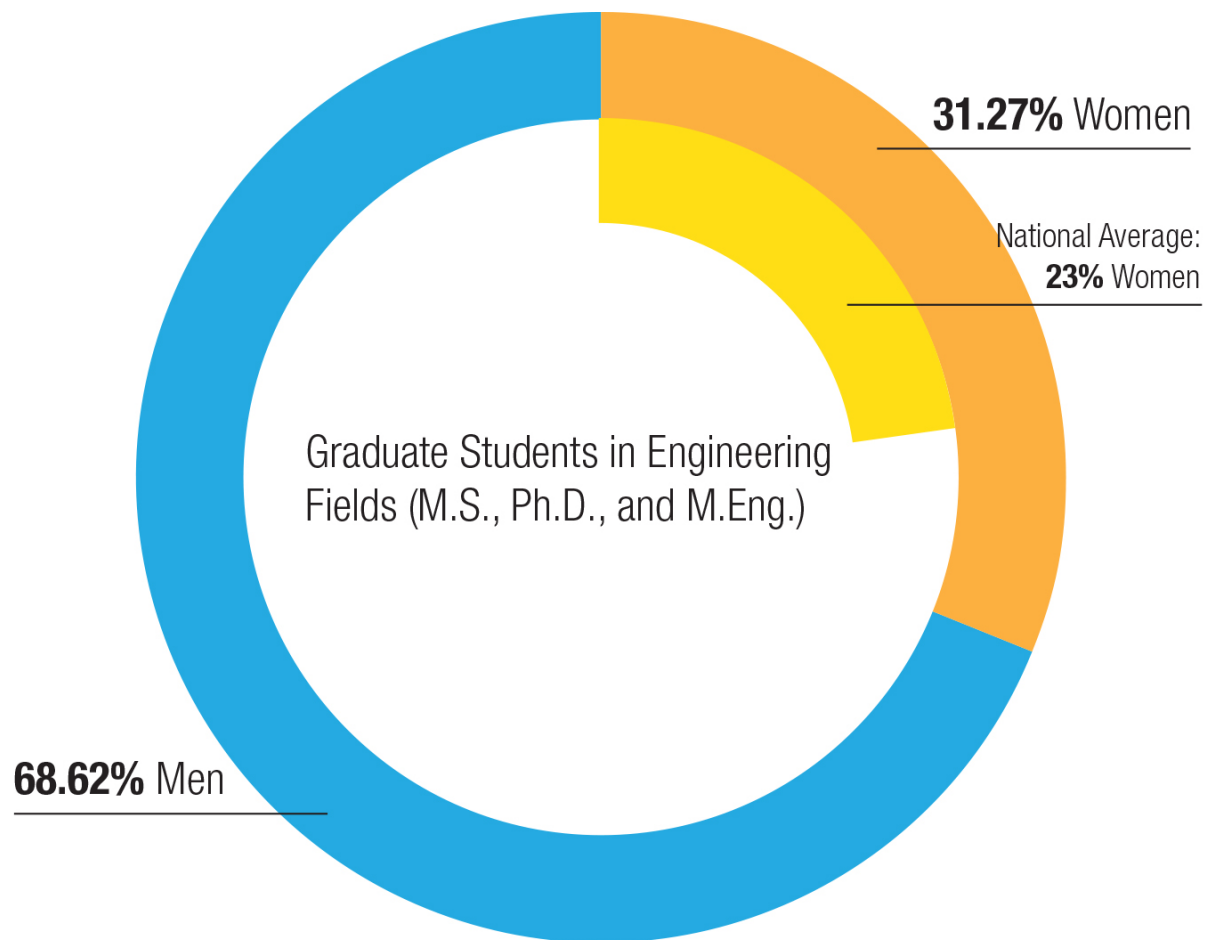
Incoming Freshmen in Engineering



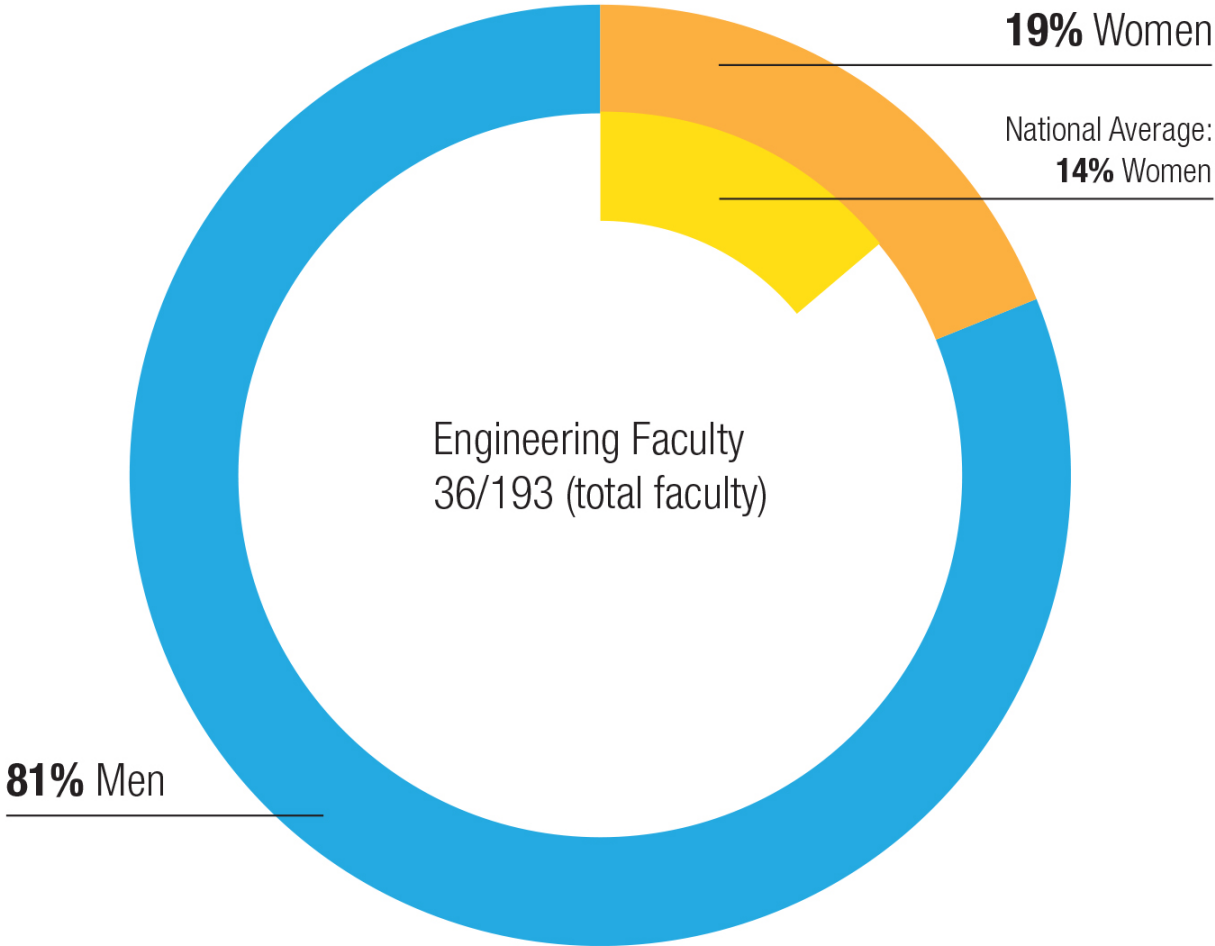
All Undergraduate Engineering Students



Graduate Students in Engineering Fields



Engineering Faculty



Student Project Team Highlights October, 2015

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 $\frac{1}{4}$ Internal, $\frac{1}{4}$ Fundraising and $\frac{1}{2}$ In Kind
in 2014-15 over \$250,000 in gifts brought in by teams

NEWS

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

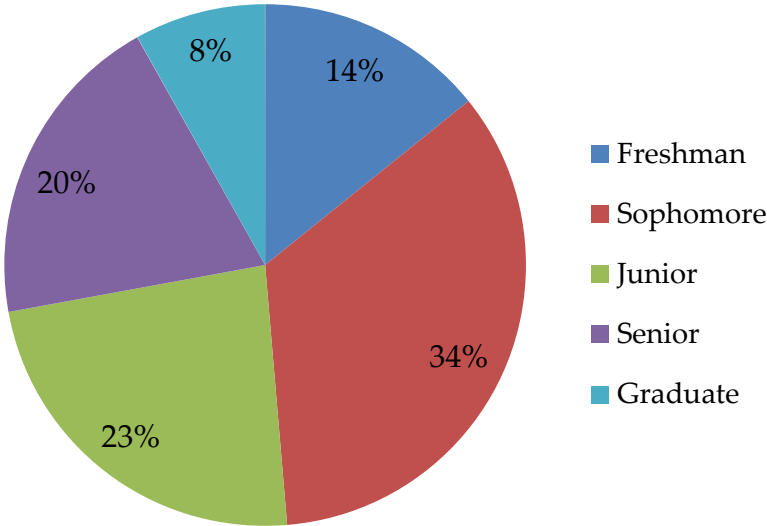


BEST ENVIRO track, in APPLIED DESIGN, in SUPPORTING ENTREPRENEURSHIP

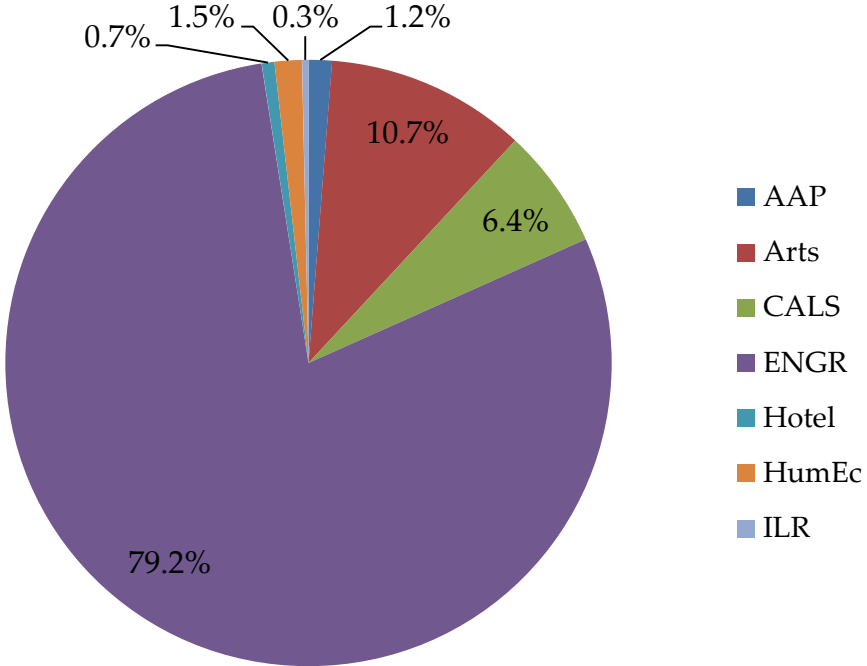


Participation by

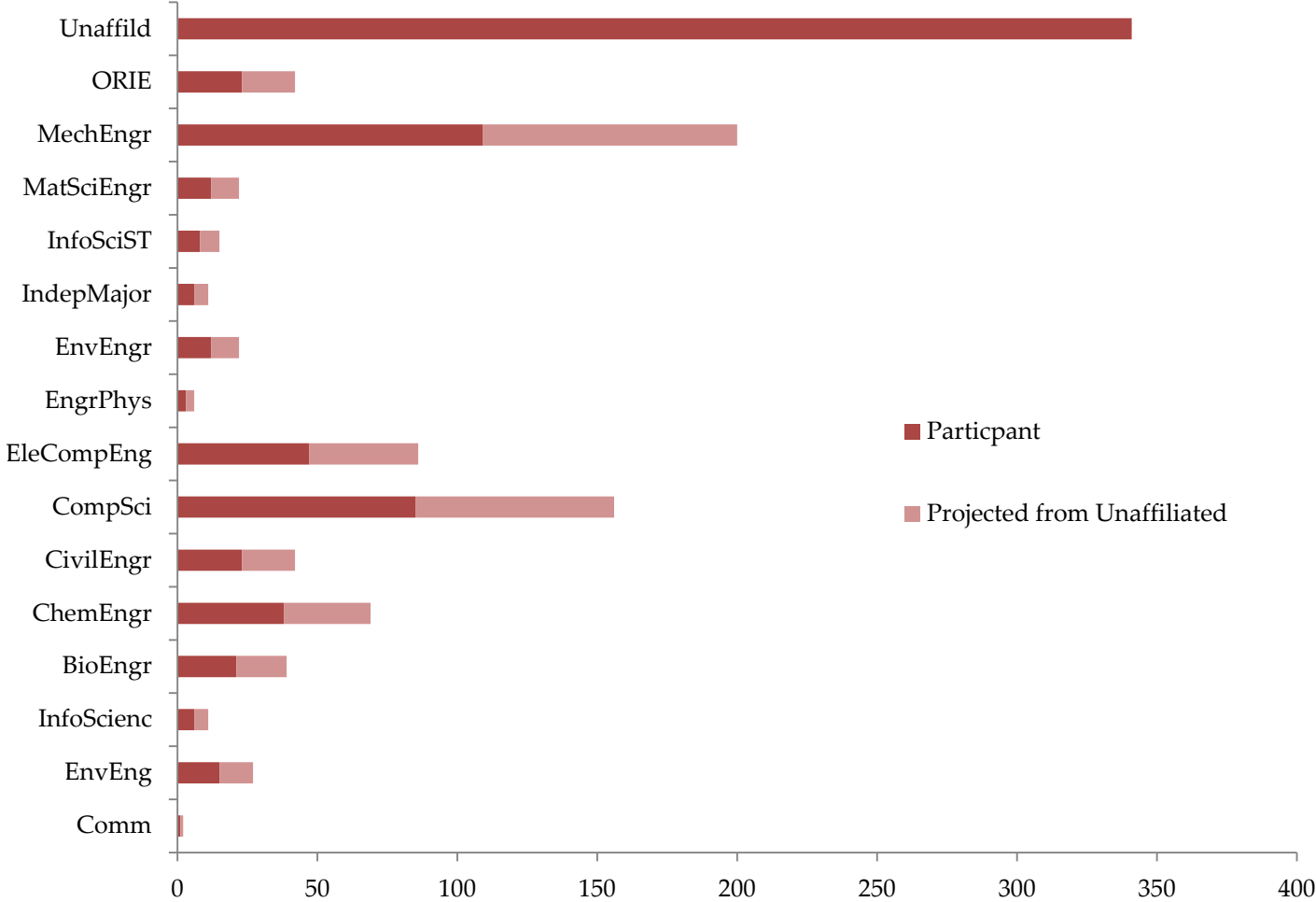
YEAR



Undergraduate College



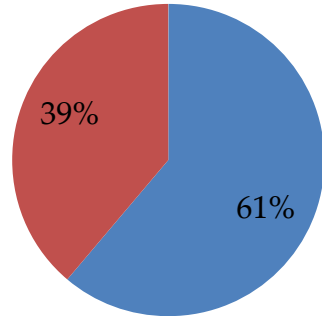
Undergraduate Engineers



Demographics

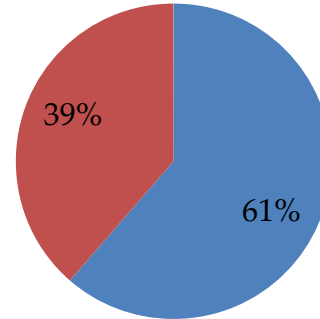
Gender

Teams Total

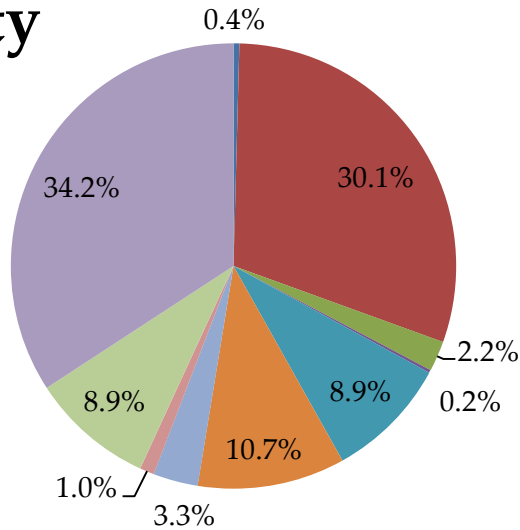


- Male
- Female

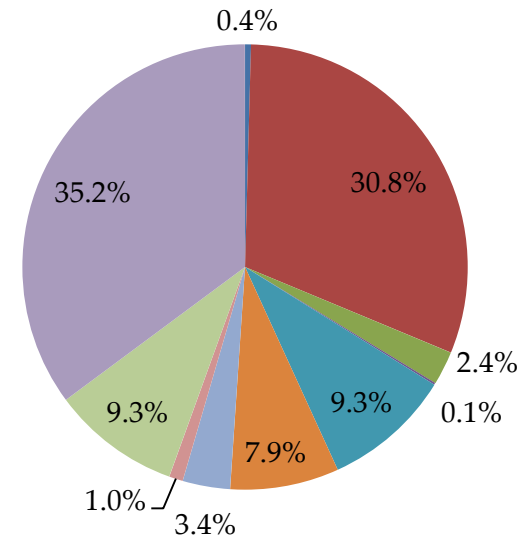
UG ENG



Ethnicity



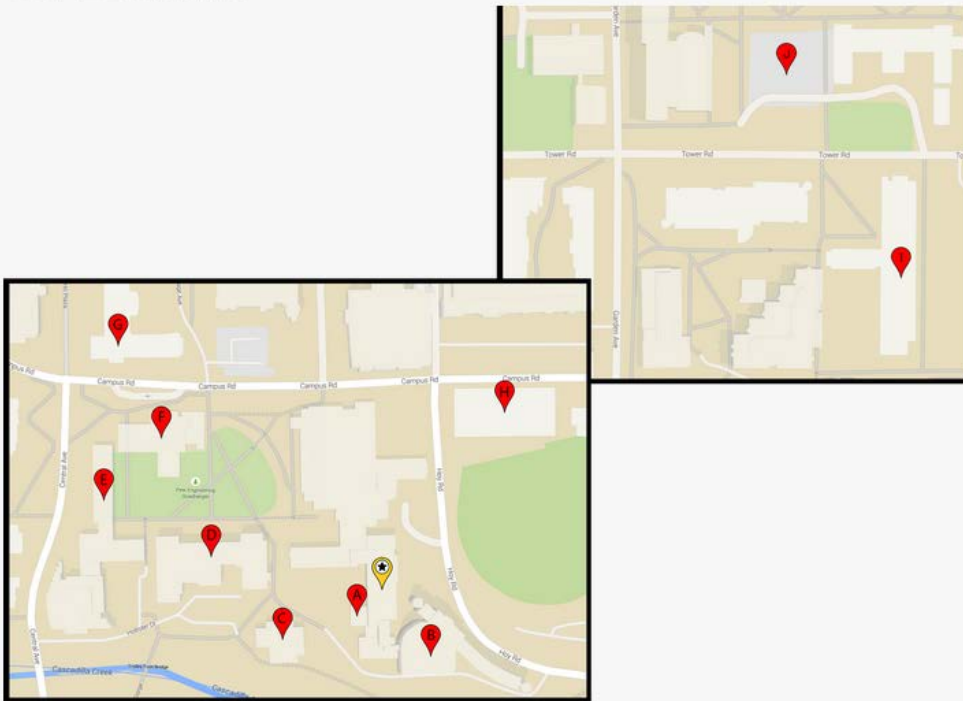
- Am. Indian
- Asian
- Black
- Hawaii/Pac
- Hispanic
- International
- Multicultural
- Multi-URM
- Other



Find us...

www.engineering.cornell.edu/teams

Our Locations:



- Starred) **Experiential Learning Lab**, B62 **Upson Hall**
- A) **GM Automotive Lab** (FSAE, Baja)
- B) **Rhodes Hall** (Machine Shop, 3d Printing Lab)
- C) **Ward Hall** (FSAE, Baja, Rocketry)
- D) **Thurston Hall** (Concrete Canoe)
- E) **Hollister Hall** (AguaClara, Steel Bridge)
- F) **Carpenter Hall** (Sustainable Design, Cornell Cup)
- G) **Olin Hall** (ChemE Car)
- H) **Bill & Melinda Gates Hall** (AppDev, ACM)
- I) **Weil Hall** (iGEM)
- J) **Surge**(CUAir, AUV, Resistance, DBF)



Follow us...



Bolivia
ENGINEERS WITHOUT BORDERS USA
CORNELL UNIVERSITY CHAPTER

Honduras & India
AguaClara

Outer Space

CornellEngineering

@CornellENGTeams



Engineering Co-op & Career Services Highlights October, 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 (35 Women / 34 Men) participating in Co-op in 2015-16**

College Facilities Update October, 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 Status

- **BME Expansion for New Undergraduate Program**
 - Concept study completed
 - Provost committee pursuing greater use of existing spaces
- **Major Renovations on Quad**
 - Kimball Hall Wet Labs – Completed
 - Upson Hall Full Renovation– Construction underway
- **Individual Department / Building Projects**
 - For new faculty and programs
 - To provide more effective use of space
- **Facility Master Plan to be Updated This Fiscal Year**
 - Include changes due to completed projects since 2011
 - Focus: Hollister, CBE labs, and Rhodes rearrangements

Major Renovations on Quad

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



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



Others

- **Snee & Bard** –Geochemistry cleanroom & faculty labs nearly done.
- **Olin** – Unit Operations lab renovated and expanded.
- **Duffield** –Faculty MBE labs in construction.
- **Rhodes** – Relocating CSL & computer classroom due to Upson.
- **Phillips & Thurston**– Server consolidation for Upson project.
- **Hollister** –Faculty and environmental labs & classroom in design.
- **Ongoing** – additional faculty startups, classrooms, public spaces, maintenance, other departmental, and energy conservation projects.

**College of Engineering
Cornell Now
Campaign Update**

October, 2015

Campaign Progress

Cornell Now Goal	\$185,000,000
Cornell Now Total <i>As of 10/14/15</i>	\$276,200,000
Attainment	149.3%
<i>* Cornell Now Campaign Ends 12/31/15</i>	
Fiscal Year 2016 NG&C Goal	\$ 50,000,000
Fiscal Year 2016 NG&C Total	\$ 14,700,000 <i>(as of 10/14/15)</i>
Fiscal Year 2016 Annual Fund Goal	\$ 2,300,000
Fiscal Year 2016 Annual Fund Total	\$ 174,331 <i>(as of 10/14/15)</i>
ECC Active Member Participation <i>(based on FY '15)</i>	32 donors out of 37 active members

Thank you!

Lance R. Collins
Dean of Engineering

October 29-30, 2015