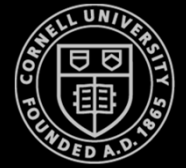
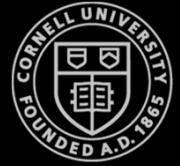


CornellEngineering Diversity Programs in Engineering



**BREAKING THE
RULES to PUSH
CONVENTIONAL
BOUNDARIES**
CornellEngineering



DPE STAFF



Cindy Mosqueda Campbell
Associate Director



Debbie Moss
Administrative
Coordinator



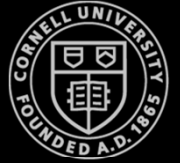
Angelica Keen
Assistant Director



Mark E. Lewis
Associate Dean



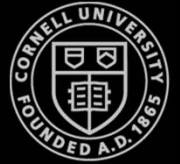
Jami P. Joyner
Director



OUR COMMUNITY

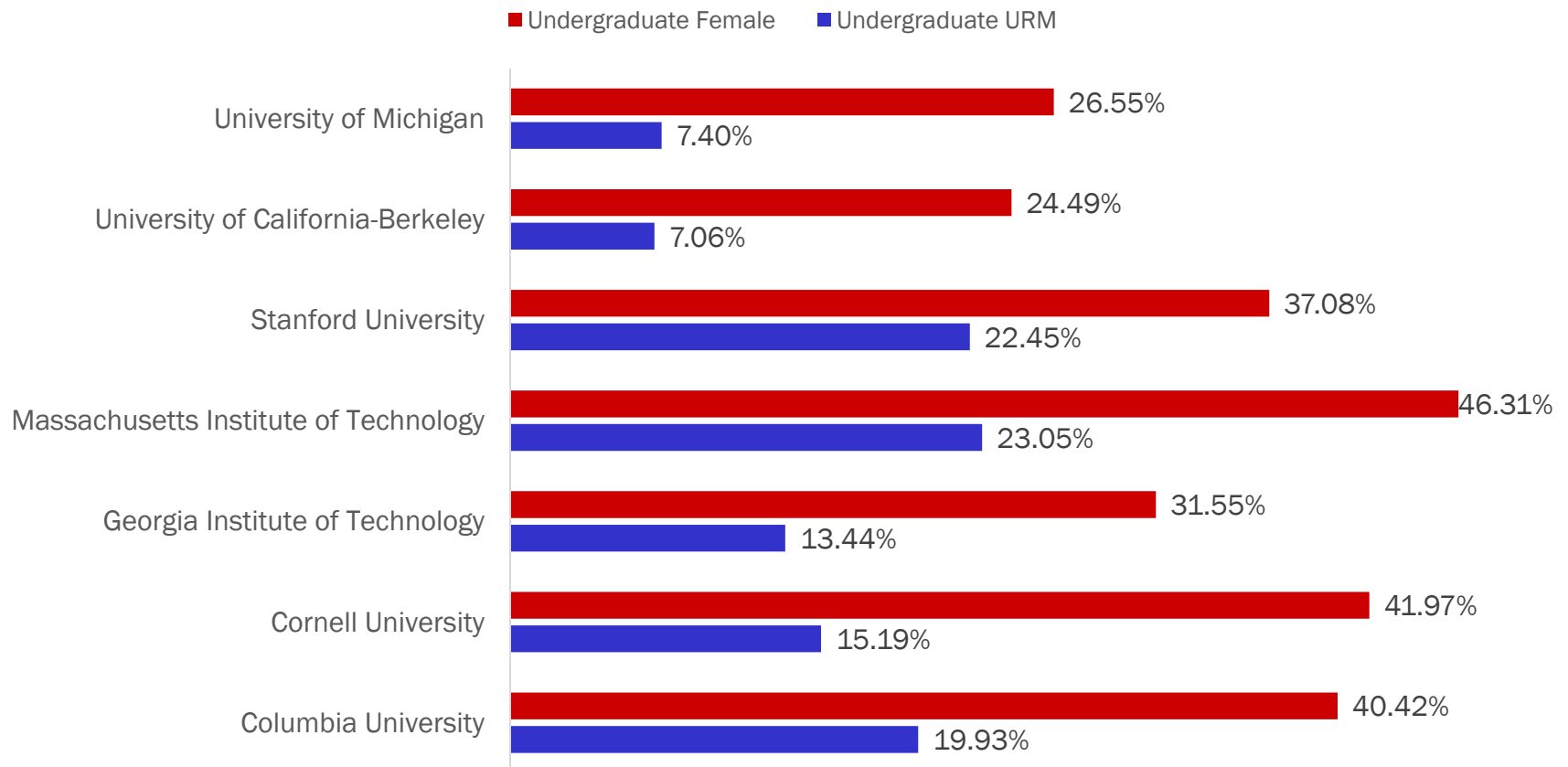
DPE initiatives supports those who are historically under-represented in Engineering and Computer Science:

- Domestic racial/ethnic minorities (UG)
 - 16.2%, Fall 2016
- Women (UG)
 - 43.3%, Fall 2016
- First generation college students (UG)
 - 1%, Fall 2015



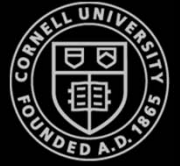
PEERS & NATIONAL OUTLOOK

Undergraduate Diversity Enrollment (Fall 2015)



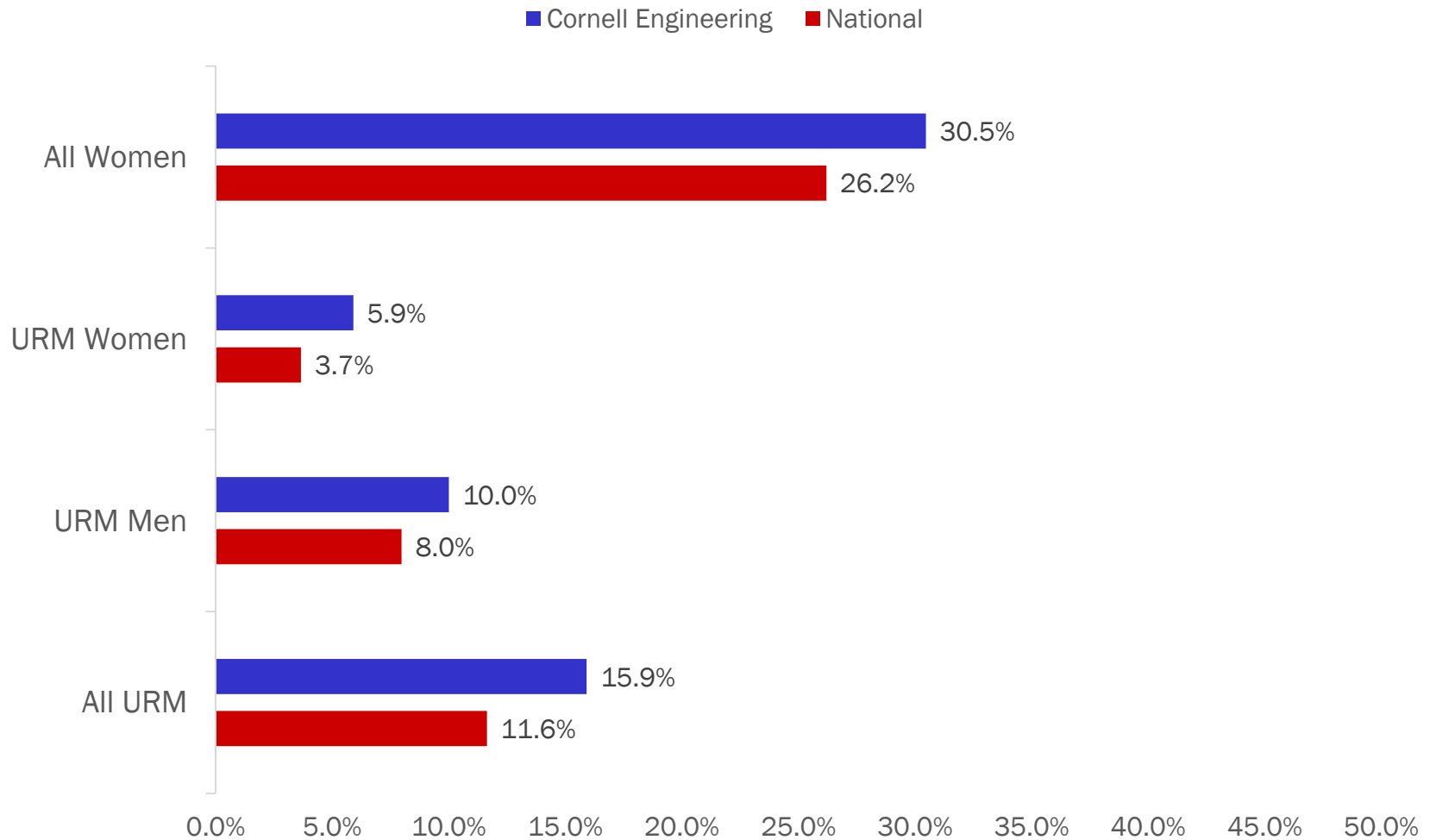
National Enrollment (Fall 2015)

- 16.2% URM
- 21.6% Women



NATIONAL OUTLOOK

Engineering PhD Enrollment Fall 2015



SIGNATURE INITIATIVES

- **Academic Excellence**

- **Scholars Programs**

- Professional & Academic Development Monetary Awards
- Advising & Mentoring
 - Graduate Scholars (Sloan, Colman, & GEM)
 - Ryan Scholars | Engineering Summer Scholars Program (PSP)
 - Engineering Summer Math Institute (rising sophomores & juniors)
 - LSAMP Scholars

- **Resources & Support**

- Walk-in & Appointments Available
- Early Intervention Actions with Engineering Advising
- CUES Enhanced Tutoring for major level courses
- DPE Study Lounge & Computer Lab – **B55 Olin Hall**
- Scholarships & Corporate Awards

- **Collaborative Relationships**

- Engineering Learning Initiatives: Academic Excellence Workshops & Undergrad Research Opportunities, TA Training
- Learning Strategies Center: Workshops, Assessments, & Scholarships
- Office of Inclusion & Student Engagement



SIGNATURE INITIATIVES

• MENTORING

- CU EMPOWER (Peer Mentoring Program)
- DPE Student Leaders Council
- Sloan Faculty Mentors
- Junior Faculty Mentoring Program



ADDITIONAL PRIORITIES

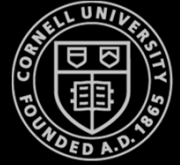
• Outreach & Research

- CURIE & CATALYST Academies
- Summer Undergraduate Research Opportunities (ESMI & LSAMP)

• Recruitment

- Diversity Hosting Weekend
- Women in Engineering Weekend
- External Recruiting Events





OUTREACH PROGRAMS

Diversity Programs in Engineering annually hosts engineering focused high school summer programs, CURIE Academy and CATALYST Academy, both are held the third week of July. The Academies are one-week summer residential programs for high school students who excel in math and science, enjoy solving problems, and want to learn more about careers in engineering.

CATALYST ACADEMY

The target populations for the CATALYST Academy are current freshmen, sophomore, and junior girls and boys from backgrounds (African American, Native American, and Latino/a) severely underrepresented in the science, technology, engineering, and math (STEM) disciplines.

- Cohort Size, 44 average

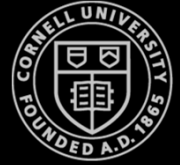
CURIE ACADEMY

The target populations for the CURIE Academy are current sophomore and junior girls of all backgrounds who exhibit strong talent and interest in STEM.

- Cohort Size, 50 average

During these summer academies:

- Cornell University's world-renowned faculty and graduate students lead classes, lab sessions, and project research designed for the participants in each academy.
- During the week, students work in teams conducting research and learning to solve problems that mirror real-life situations.
- In addition, social events, panel discussions, and other out-of-classroom activities provide participants with opportunities to network informally with each other and Cornell faculty, staff, and students.
- Students reside in the residential hall and are supervised as well as mentored by Cornell Engineering undergraduates



OUTREACH PROGRAMS

“During this program, I not only got to experience the beautiful Cornell campus, but the academic features that make this school unique, from witty and funny professors to freshmen undergrads doing research, that made me fall in love with this school and want to attend Cornell University.”

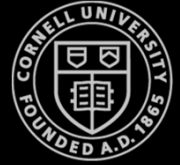
- 2016 CATALYST Student

Catalyst

- 398 Catalyst participants/alumni from 2006-2016
- 69% Catalyst alumni who majored in STEM at any university (Cohort years 2006-2015)
- 49% Yield of Catalyst alumni who were admitted to Cornell (Cohort years 2007-2016)
- 80% Yield of URM Catalyst Alumni who were admitted to Cornell (Cohort years 2006-2014)
- 52% Yield of Catalyst Students enrolled in Cornell Engineering (Cohort years 2007-2014)

Curie

- 641 Curie participants/alumni from 2000-2016
- 86% Curie alumni who majored in STEM at any university (Cohort years 2009-16)
- 47% Yield of Curie alumni who were admitted to Cornell (Cohort years 2007-16)
- 96% Yield of Curie Students enrolled in STEM at Cornell (Cohort years 2007-2015)
- 84% Yield of Curie Students enrolled in Cornell Engineering (Cohort years 2007-2015)



HOSTING PROGRAMS

ENGINEERING DIVERSITY HOSTING WEEKEND (DHW)

A joint recruitment programs with Engineering Admissions focused on cultivating and matriculating URM and first generation prospective undergraduate students.

- up to 80 attendees

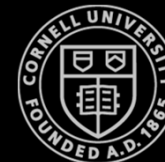
WOMEN IN ENGINEERING (WIE)

A joint recruitment program with Engineering Admissions and the Society of Women Engineers focused on introducing high school women to engineering and Cornell University.

- up to 120 attendees

Hosting Details

- DHW & WIE provide an insider's view into life as a Cornell Engineer.
- For admitted Engineering students only
- Participants have the opportunity to:
 - Stay in a residence hall with a current student
 - Participate in an interactive lab demonstration
 - Interact with faculty, staff, and students
 - Learn about the opportunities and resources available to Cornell Engineers
 - Engage with members of several of our award-winning engineering student organizations



HOSTING PROGRAMS

Table 1: Hosting Programs

Spring programs yields

	URMS Yield Rates		Women Yield Rates	
	EDHW	vs all ENGR URMS	WIE	vs All Women
	Spring	Annual	Spring	Annual
2013	58.0%	36.0%	69.0%	45.8%
2014	51.0%	35.0%	70.0%	45.2%
2015	50.0%	40.0%	69.6%	45.9%
2016	54.0%	39.0%	76.1%	48.0%
4 Year Average	53.25%	37.5%	71.2%	46.2%

Table 2: Entering Class Percentage of Incoming Matriculates:

Entering classes demonstrate continual growth in URM & Women from 2012-2016

	2012	2013	2014	2015	2016
URM	16.4%	15.0%	14.8%	18.9%	18.4%
Women	43.3%	42.8%	43.2%	48.1%	48.5%



ESSP: ENGINEERING SUMMER SCHOLARS PROGRAM

Engineering's Pre-freshmen Summer Program --a six-week summer residential program that allows selected first year students to learn about the College of Engineering and build a solid academic and social foundation prior to the fall semester.

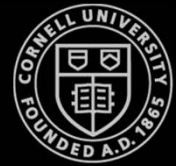
- Up to 34 Students selected through the Engineering undergraduate admissions process participate in ESSP
- Course Load
 - Spatial Visualization Course
 - Computer Science Course
 - Math Course
- Academic & Social Community Engagement
- Those engineering students confirmed for participation in the PSP/ESSP are also confirmed as Ryan Scholars.

RYAN SCHOLARS

A strategically structured scholars program that matriculates ESSP/PSP students into continued academic support throughout their engineering undergraduate career. The program is grounded in developing a supportive community of scholars that focuses on the success of the individual as well as the success of the collective group. The core components of the program include the following:

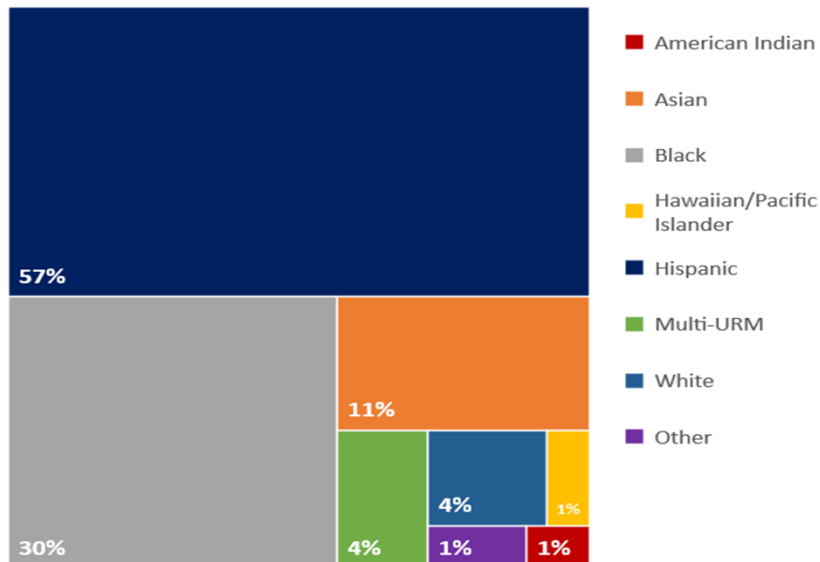
- Engineering Summer Scholars Program includes CUES Spatial Visualization Skill Development
- Established Community
- Proactive Advising
- Mentoring (CU EMPower)
- Professional and Academic Development Awards
- Tutoring & Strategic Actions for Excellence Workshops

The Ryan Scholars Program is sponsored in part by generous funding from Cornell Alumnus Robert L. Ryan (MS EE '68)

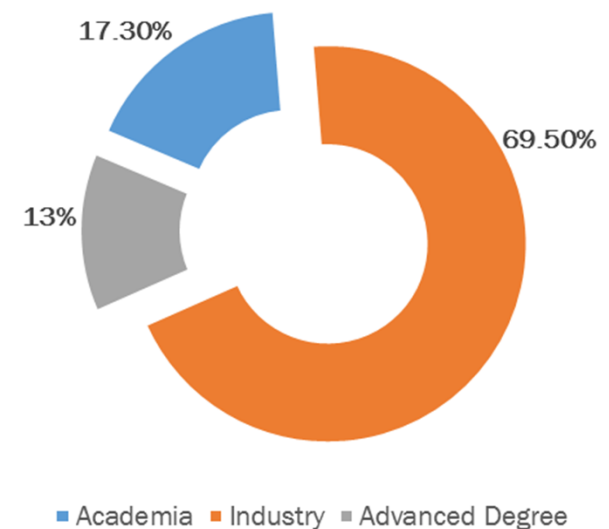


RYAN SCHOLARS

COMPOSITION 2010-2016



Post Graduate Matriculation
2010-2012 Cohorts



Fast Facts

57%

Of Ryan Scholars are First Generation College Students
*Only tracked for 2012-2016 cohorts, 93 of 163 students

84%

5 Year Average Degree Completion Rate of Ryan Scholars
*2010-2012 Cohorts

3.01

Average Cumulative GPA of a Ryan Scholar



CUES: CORNELL UNIVERSITY ENGINEERING SUCCESS

The goal of the CUES Program is to increase the retention and graduation rates of underrepresented minority (URM) and first generation college (FGC) students to levels equal to the overall engineering student body. To advance this goal, CUES implements three research proven interventions starting from students' first year and continuing through their senior year. **The CUES program is supported by the NSF under Grant No. 1317501.**

ENHANCED TUTORING

- To enhance affiliation and graduation rates, CUES provides URM and FGC students with access to tutors for the gateway courses to engineering majors and for major level courses.

ENGINEERING SUMMER MATH INSTITUTE (ESMI)

- ESMI is an 8-week summer program during which rising sophomores and juniors enroll in a summer math course and participate in a research project or conduct research with faculty in their intended major.
- Math Course + Collaborative Learning Groups + Research Experience
- At the end of the summer, all ESMI participants present their work at the Cornell LSAMP & McNair Research Symposium.

SPATIAL VISUALIZATION SKILL DEVELOPMENT

- Engineering's Pre-Freshmen Summer Program students participate in a 2-credit course entitled Spatial Visualization and Thinking for Engineers.
- A working adeptness with these skills can be learned and retained over time with a relatively small amount of instruction and practice.
- The NSF funded [ENGAGE](#) Project has developed, implemented and tested a proven curriculum that is the basis of this course

CU EMPower: PEER MENTORING PROGRAM

A mentoring program that supports the personal and academic development and achievement of first year undergraduate and graduate students as well as undergraduate transfer students by matching them with upperclassmen and/or advanced graduate student peer mentors.

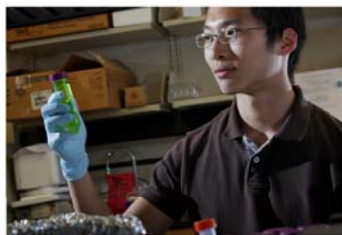
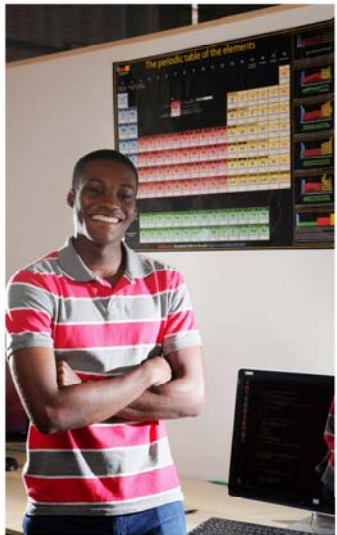


Key Goals:

- Increasing student satisfaction and retention
- Contributing to a holistic student support system
- Developing meaningful connections between new and more experienced students
- Helping Protégés and Peer mentors build self-esteem, self-confidence, and a sense of belonging
- Creating a positive and caring community among engineering students

CORNELL LSAMP

LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION



CU LSAMP Scholars Program provides:

- Strategic graduate school preparation includes
 - Search & admissions process
 - Identifying and applying for undergraduate research opportunities
 - Graduate fellowship applications

CU LSAMP REU (Research Experience for Undergraduates):

- 8-week summer research program with faculty research mentors
- Helps to inform career decisions
- \$4000 stipend with housing

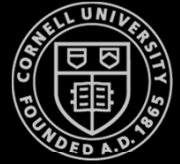
Joint Alliance Activities:

- GEM Grad Lab
- National & regional Conferences

Recruitment Initiatives

- National & regional Conferences

LSAMP is sponsored by NSF



CORNELL LSAMP SCHOLARS

LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION

100%

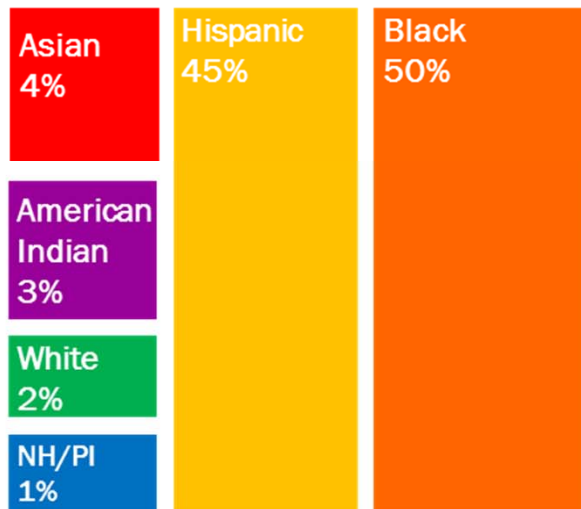
Degree Completion Rate of Cornell LSAMP Scholars, 2011-2016,
78 of 94 have graduated in STEM; 16 of the 94 are currently enrolled students in STEM

95%

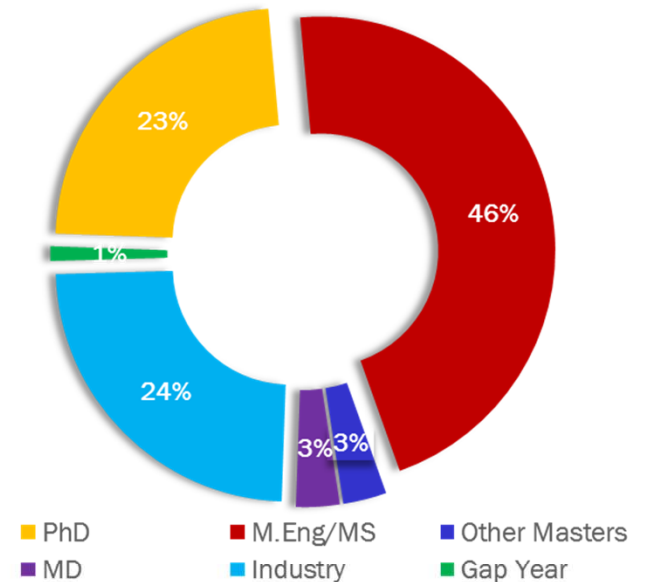
Cornell LSAMP Scholars have engaged in undergraduate research

100%

Engineering Summer Scholars Pre-freshmen in 2013, 2014 and 2016 have participated in LSAMP PowerLab. The event was not held in 2015.



Post Graduate Matriculation
2011-2016





CORNELL LSAMP REU

LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION

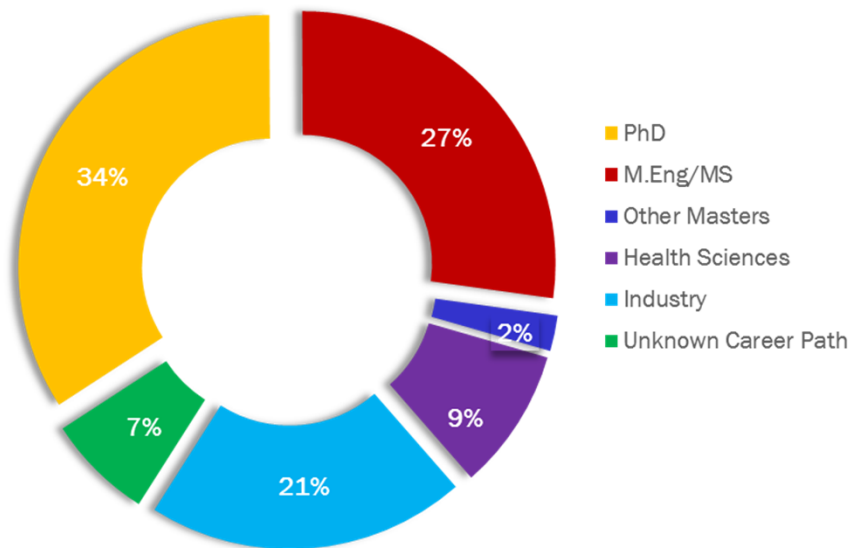
44

Cornell LSAMP REU Scholars graduated with a B.S. in STEM (18 are currently enrolled in STEM)

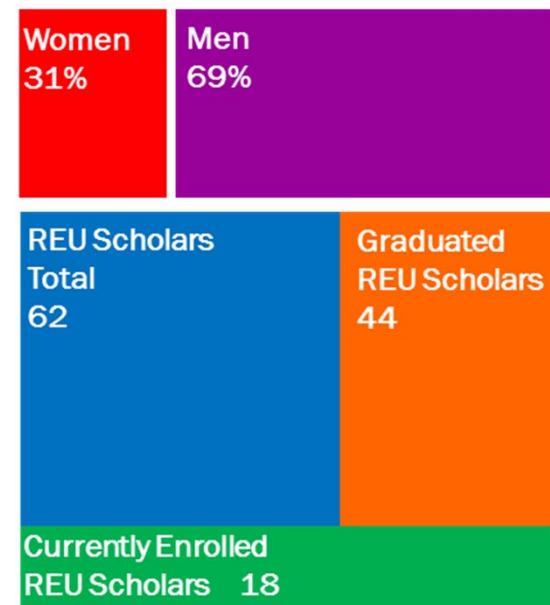
100%

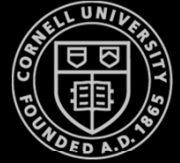
CU LSAMP REU Scholars who've graduated and have pursued a MEng/MS or PhD have remained in a STEM discipline

Post Graduate Matriculation
2011-2016



Composition 2011-2016





DIVERSITY FELLOWSHIPS

CU Sloan Fellowships

Through partnerships with the Alfred P. Sloan Foundation and the Cornell Graduate School, the DPE office supports CU Sloan Fellows with up to three years of academic year and summer stipend support, tuition, and health insurance for highly competitive underrepresented minority (URM) students who are who are US citizens or permanent residents and are beginning their doctoral work in engineering, natural science and mathematics. The fellows' departments also commit two additional years of support. (5 year Fellowship; 9 annually awarded)

CU Colman Fellowships

The DPE office also administers the CU Colman Fellowships (funded by a generous gift from the Colman Family Foundation), which through a collaborative relationship with the Cornell Graduate School, provides up three years of fellowship support to selected underrepresented minority PhD students in the College of Engineering. The fellows' departments also commit two additional years of support. (5 year Fellowship; 3 annually awarded)

GEM Fellowships

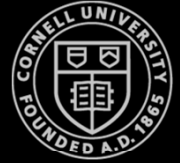
Prospective and current MEng, MS, and PhD students have the opportunity to apply for fellowships from the [National GEM Consortium](#), whose primary focus is to administer and award fellowships with paid internships to highly qualified URM students who wish to pursue graduate students in engineering or applied sciences. Cornell University is a member institution of the National GEM Consortium. (1 year Fellowship; Average of 3 annually awarded)

CU Clare Boothe Luce Fellowships

Through partnerships with the Clare Boothe Luce Program, which is part of the Henry Luce Foundation, and the Cornell Graduate School, the DPE office supports CU Clare Boothe Luce Fellows with up to three years of academic year and summer stipend support, tuition, and health insurance. This fellowship program targets highly competitive female PhD students in electrical and computer engineering, materials science and engineering, and mechanical and aerospace engineering.

CU Sage/Diversity Fellowships

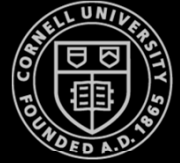
The DPE office collaborates with the Cornell Graduate School to support the Cornell Sage/Diversity Fellowships, which are one-year fellowships for URM students, students who have a history of overcoming adversity, students from single-parent households, and/or first-generation college students.



DIVERSITY FELLOWSHIPS

CU Sloan, GEM, & Colman Fellows Support

- Summer Success Symposium
 - New & continuing Fellows
 - Collaboration with OISE
- Mentoring
 - CU Empower
 - Faculty Mentor
- Community Development
 - Sloan Lunch Series with faculty
 - Welcome Dinner
 - Holiday Reception
- Professional Development
 - Institute for Teaching and Mentoring
 - Master Your Future
 - Colman Leadership



DIVERSITY FELLOWSHIPS

Highlights

- The Cornell-Sloan Minority PhD Program has sent over 60% of the program graduates to post-doctoral or faculty positions.
- 50%, Sloan Scholars Awarded NSF Graduate Research Fellowships (Cohorts 2012-2015).

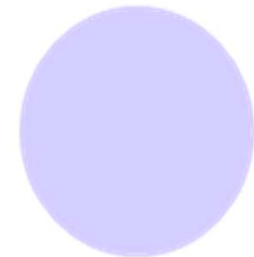
GRADUATION RATE

Cohorts 2004-2008



75.6%

Sloan URMs



57.1%





Non Sloan URMs

COLMAN LEADERSHIP

PHD STUDENT DEVELOPMENT



Colman Leadership Program

 NEZET AGUIAR	 ANDRES AGUIRRE	 MOHAMMAD ALISHI	 EMILY AZENATH-SMITH	 BOB BELL	 ERIN CAMP
 JAE CHOI	 NATALIE DAWLEY	 CARLOS DORTA-QUINONES	 EMILY FARRAR	 STEVE HALABY	 STEPHANIE RENEE HILZ
 MATT HOLDEN	 YU LING HUANG	 CATHERINE JOHNSON	 RYAN LAU	 CARIN LIGHTNER	 KENNETH LYONS, JR
 SIMEON MALAROPOULOS	 HILDA MERA	 JADE NOBLE	 JOHN PALMORE	 NIRAV PATEL	 TIFFANY ST. BERNARD
 ALEX WANG	 SAIEN XIE	 JESNY ZHOU	 RENEE PIRO, FACILITATOR	 LINDA J. TOMPKINS, FACILITATOR	 PATRICIA STRIMLING, FACILITATOR

Diversity Programs in Engineering • Cornell University
146 Olin Hall, Ithaca, NY 14853 • 607.255.6403
dpeng@cornell.edu • www.engineering.cornell.edu/diversity



Key Focus Areas of Development

- Self-awareness as a leadership skill
- Extend self-awareness to effective interpersonal dynamics
- Appreciating fundamental group dynamics
- Understanding of how to create teams from groups
- Appreciating diversity in all contexts
- Differentiating between role authority and leadership in an organizational context
- Learning skills of integration and synthesis via an electronic portfolio

Program Dates

- January (Engineering & affiliated fields)
- June (in collaboration with OISE)
- Cohort 25-30 students

DPE AFFILIATED STUDENT ORGANIZATIONS



AISES — American Indian Science & Engineering Society

<http://tiny.cc/cornell-aises>



SACNAS — Society of the Advancement of Chicanos/Latinos and Native Americans in Science

<https://www.facebook.com/CornellSACNAS/>



NSBE — National Society of Black Engineers

<http://nsbe.cornell.edu>



SWE—Society of Women Engineers

<http://swe.cornell.edu>



SASE— Society of Asian Scientists & Engineers

<http://tiny.cc/cornell-sase>



WICC—Women in Computing at Cornell

<http://wicc.acm.org/>



SHPE— Society of Hispanic Professional Engineers

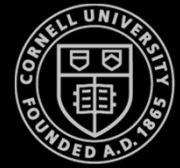
<http://shpe.cornell.edu>



oSTEM@Cornell—Out in Science, Technology Engineering & Mathematics

<http://ostematcornell.weebly.com/>

CornellEngineering Diversity Programs in Engineering



CONNECT TO DPE



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<https://www.engineering.cornell.edu/engdiversity>

146 Olin Hall

(607) 255-6403

DPENG@cornell.edu

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