



**PURDUE UNIVERSITY**  
**MINORITY ENGINEERING PROGRAM**  
**2016**  
**ANNUAL REPORT**



**CHAMPIONS OF DIVERSITY**

## From The Director



**Virginia Booth Womack, Director**  
BSIE, BA Psychology  
18 Years Industrial and Manufacturing  
Experience

Greetings from the Minority Engineering Program! This 2016 Annual Report will review the accomplishments of the past year and celebrate the signature programs, contributions, and collaborations that lead to student success. Our efforts to broaden the participation of underrepresented students in engineering are strengthened by our stakeholders, but they would not be possible without the dean of the College of Engineering. During my tenure as Director of the Minority Engineering Program, I enjoyed the leadership of Dean Linda Katehi, who served in this capacity from 2002-2006. Dean Katehi was instrumental in the launch of the Engineering Academic Boot Camp in 2005. Succeeding Dean Katehi was Dean Leah H. Jamieson, who after two terms of service will be stepping down. The leadership of Dean Leah H. Jamieson from 2006-2017 has been stellar. This Annual Report is dedicated to her work.

All of the accomplishments we reflect on in this report are facilitated by the support of our amazing dean and are possible because of the generosity of the stakeholders that support the College of Engineering and the Minority Engineering Program. We thank all of our supporters for believing in this work and ensuring that it will continue.

Recently, President Mitch Daniels released a statement to the academic community and I quote:

“For the first time on record, the freshman-sophomore retention rates for African American students (92.2%) surpassed that of the class as a whole (91.8%) this year. This is more than a Purdue first. We are unaware of any other university where this has occurred. Hispanic students also reached a new high (91.1%), nearly equaling the overall rate.”

This amazing report gave overall university metrics. Here are the equivalent metrics for the College of Engineering: freshman-sophomore retention rate for underrepresented minority students was 95.9%. For African American engineering students, the freshman-sophomore retention rate was 100%! This is the highest on record and we acknowledge the village contribution to this success. The admissions office, diversity programs, student mentors and tutors; we all are important ingredients that make up ‘the village’. And it takes a strong, committed dean to blend the ingredients to achieve the desired outcomes. Dean Jamieson has been steadfast in her strength and commitment and the results are evident.

The increase in student access and success in engineering is laudable, but we must do more to address the concerns of affordability for students who will not be able to persist without additional support. Our alumni giving levels are consistently increasing. This upcoming year, I am looking for 300 alumni to give a perpetual monthly recurring gift to the Minority Engineering Program beginning. Regardless of how small your gift may be, the impact is enormous in the life of a student. Thank you for your continued support. I look forward to another record-breaking year in 2017.

A handwritten signature in black ink that reads "Virginia Booth Womack". The signature is fluid and cursive, with a large initial 'V'.

## Profile of a Diversity, Equity, and Inclusion Champion

# Leah H. Jamieson

John A. Edwardson Dean of the College of Engineering at Purdue University and  
Ransburg Distinguished Professor of Electrical and Computer Engineering

The title of “Distinguished Professor” only begins to hint at the numerous accomplishments of Dean Leah Jamieson. Known internationally as a pioneering educator, pre-eminent research scholar, and servant leader, Dean Jamieson will conclude her second term as the Dean of the College of Engineering at Purdue in July 2017. We take this moment to reflect on what she has meant to the Minority Engineering Program and to diversity, equity, and inclusion efforts in engineering more broadly.

At Purdue, her support of MEP for the past 11 years has enabled historic increases in URM undergraduate enrollment utilizing the strategic growth of the College to make measurable gains in diversity. Consistent and significant improvement in URM first-year academic performance, retention rates, and graduation rates year after year are noted as seen by the data presented in this report. Those quantifiable changes don't occur by chance. They are fueled by bold leadership and passion. In alignment with the commitment to diversity made in the ASEE Engineering Deans Council Diversity Initiative Letter, Dean Jamieson has provided funding to support the recruitment and retention efforts of student organizations, participated in a variety of conversations listening to student perspectives on campus climate and national climate, and engaged her college leadership team in needs assessment and strategic plan development for diversity and inclusion. Nationally, she has provided immeasurable support to diversity-focused organizations including the National Society of Black Engineers, permitting Purdue MEP director Virginia Booth Womack to serve as an executive on loan to the National Society of Black Engineers (NSBE) during its search for a new Executive Director. Additionally, Dean Jamieson has also played an instrumental role in supporting NAMEPA over the past two years. She has provided institutional support offering Purdue's College of Engineering as a physical headquarters for the organization and has shared her expertise in organizational management as the NAMEPA Dean's Advisory Board Chair.

Supporting proven programs, taking decision action, and enacting data-driven policy changes to improve access and success of students from diverse backgrounds have been hallmarks of Dean Jamieson's tenure.

We extend our thanks to Dean Jamieson. She is a true champion of diversity, equity, and inclusion and an extraordinary engineer who has, through her service, made Purdue a better place.



# Staff



**Virginia Booth Womack**  
Director  
vboothgl@purdue.edu



**Darryl Dickerson, PhD**  
Associate Director  
ddickerson@purdue.edu



**Carol Stwalley, PhD**  
Recruitment and Retention Analyst  
cgss@purdue.edu



**Cinthia Sanchez, PhD**  
Outreach and Retention Administrator  
sanchezh@purdue.edu



**Heather Coar, MS**  
Assistant Director of Communications  
hcoar@purdue.edu



**Tasha Zephirin**  
PhD Student  
Graduate Assistant  
tkzeph@purdue.edu



**Michelle Visbal**  
PhD Student  
Graduate Assistant  
mvisbal@purdue.edu



**Deepak Atyam**  
MS Student  
Graduate Assistant  
datyam@purdue.edu

# History, Mission, Objectives



## History: Then and Now

The Minority Engineering Program at Purdue was one of several initiatives to improve diversity and inclusion in the College of Engineering. Leadership that championed this cause includes but is not limited to the individuals pictured above. Left to right, 1974 Purdue President Arthur Hansen; 1974 Dean of the College of Engineering, John C. Hancock; 1974 Head of First-Year Engineering, Dr. Richard Grace, who also launched the Freshman Honors Program and the Women in Engineering Program; Office of Minority Affairs in First-Year Engineering, Mrs. Saunie Taylor; Electrical and Computer Engineering Professor, Dr. Arthur Bond, the only African American in 1974 in the College of Engineering, championed the cause for increasing diversity in the College of Engineering; 1974 Director of the Minority Engineering Program, Marion Williamson Blalock, established a strong metric foundation for URM matriculation and over 30 years of service brought Purdue to national recognition for K-12 programs; 1974 Head of First-Year Engineering, Dr. Harold Amrine provided funding and encouraged full faculty support for these initiatives. These and so many other individuals like Dr. Phil Wankat, Dr. Eric Furgason, Barrett Robinson, Dr. William Lebold, and Jane Daniels paved the way for underrepresented minority student access and success at Purdue. Today, we have continued this commitment to diversity and inclusion under the leadership of the current Dean of the College of Engineering, Leah Jamieson, and our current president, Mitch Daniels.

## Mission:

To advance engineering learning, discovery, and engagement in fulfillment of the Land Grant promise through outreach, recruitment, and retention of historically underrepresented students in their pursuit to become extraordinary Purdue engineers. Although our programs are open to all students without regard to race, ethnicity, or gender, underrepresented students at Purdue University include African Americans, Latino/Hispanic Americans, and Native Americans/Hawaiians/Pacific Islanders.

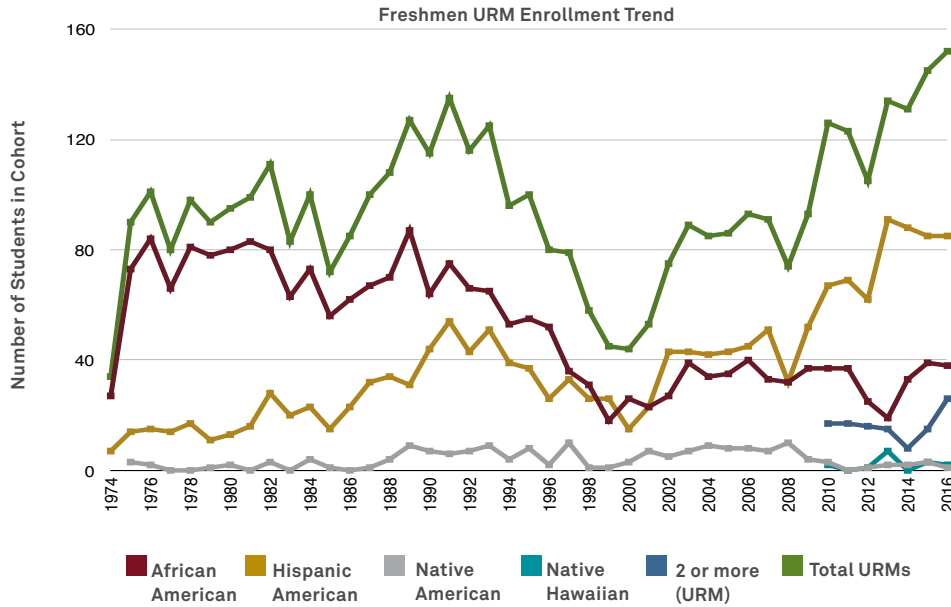
## Objectives:

Established in 1974, our programs have been nationally recognized and replicated. The following objectives guide our activities:

- To identify metric-driven strategies to increase the participation of historically underrepresented domestic students in engagement, learning, and discovery activities about engineering.
- To encourage interest, recruitment, enrollment, and matriculation of underrepresented domestic students in engineering at the undergraduate and graduate level.
- To provide programs that increase K-12 focus on mathematics, science, and engineering and inspire students to learn how they can use these tools to serve humanity, improve the quality of life, and make the world a better place.
- To create an environment that fosters the celebration of cultural diversity across all engineering disciplines and promotes global learning opportunities.
- To provide metrics and publications that stimulate collegial and corporate dialogue to champion the national effort to achieve workforce diversity and inclusion.

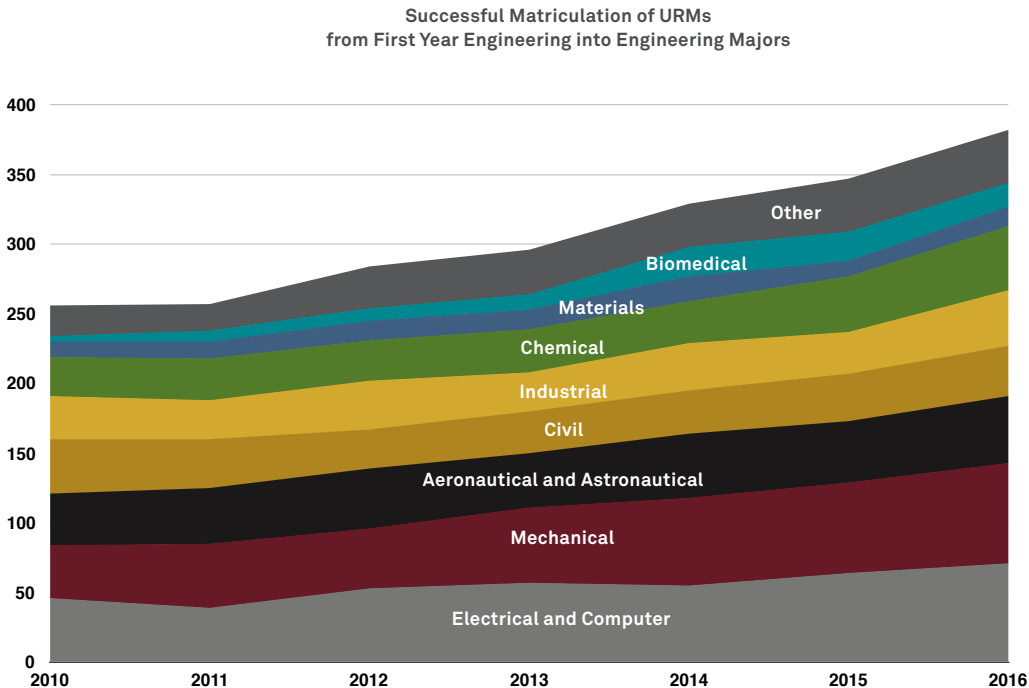
# Undergraduate Enrollment

## FRESHMEN URM ENROLLMENT



> Fall 2016 marks the second consecutive year with a historic high first-year engineering enrollment with 152 URM students. African American and Hispanic American/Latino enrollment continued to hold steady. This marks a 67% increase in first-year engineering enrollment of URM since Dean Jamieson began as Dean of the College of Engineering.

## MATRICULATION OF URMS



> Continuous improvement in the first year curriculum, student advising, learning communities, retention initiatives, and diversity focus within the schools have led to underrepresented minority (URM) students identifying majors earlier. This past year, nearly all majors showed an increase their URM enrollment. Top majors of choice are: Mechanical Engineering, Biomedical Engineering, Electrical and Computer Engineering, Aeronautical and Astronautical Engineering, and Industrial Engineering.

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**Alexander Boza, Freshman, First-Year Engineering Program**  
Hometown: Miami FL

Alexander Boza is currently a freshman in the first-year engineering program focused on entering the school of Biomedical Engineering. Boza, from Miami, Florida, attended both the 2016 Engineering PREVIEW and the 2016 Engineering Academic Boot Camp programs while currently being enrolled in the ENGR 180 seminar course. In addition to his involvement with the Minority engineering programs and pursuing his degree, Boza is also the Programs Chair for the freshman council of the National Society of Black Engineers. According to Boza “MEP has been a family away from home and has given me the strongest support system I could ever ask for here at Purdue. MEP has helped me with every aspect of my college experience. I have made friendships that I know will last a lifetime.”  
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2016

Photo Credit: Paul Johnson

## Bonnie Prado Pino, PhD Student, Aeronautical and Astronautical Engineering, Hometown: Quibdo, Colombia

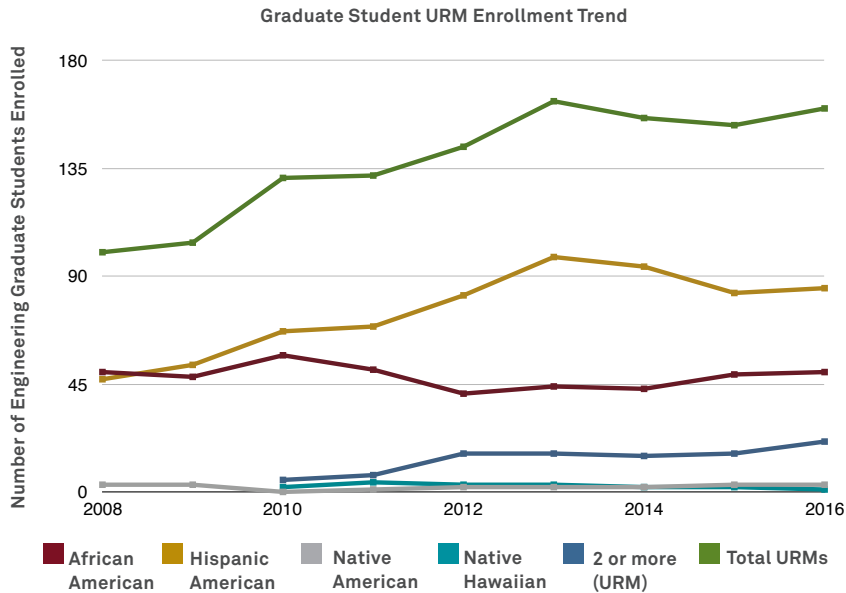
Bonnie Prado Pino is currently a graduate student pursuing a PhD in Aeronautical and Astronautical Engineering under the guidance of her advisor Kathleen Howell. Bonnie has worked with the Minority Engineering Program as a member of the 2013 Engineering Academic Boot Camp Instructional Team teaching Calculus. She recalls this experience for its value in honing her teaching skills as well as allowing her to mentor a number of underrepresented minority students. Bonnie's deep passion for working with students has led to the launch of the Afro-Latino Experience STEAM Camp in Chocó, Colombia in 2015. This program prepares a new generation of underrepresented scientists and engineers from disadvantage middle and high schools in Quibdó, Colombia, through a series of Science, Technology, Engineering, Agriculture, and Mathematics (STEAM) research activities as well as social and cultural workshops, that will help develop the necessary skills to succeed in their chosen field both at a professional and interpersonal level, while embracing and reinforcing their racial and cultural identity.





# Graduate Enrollment

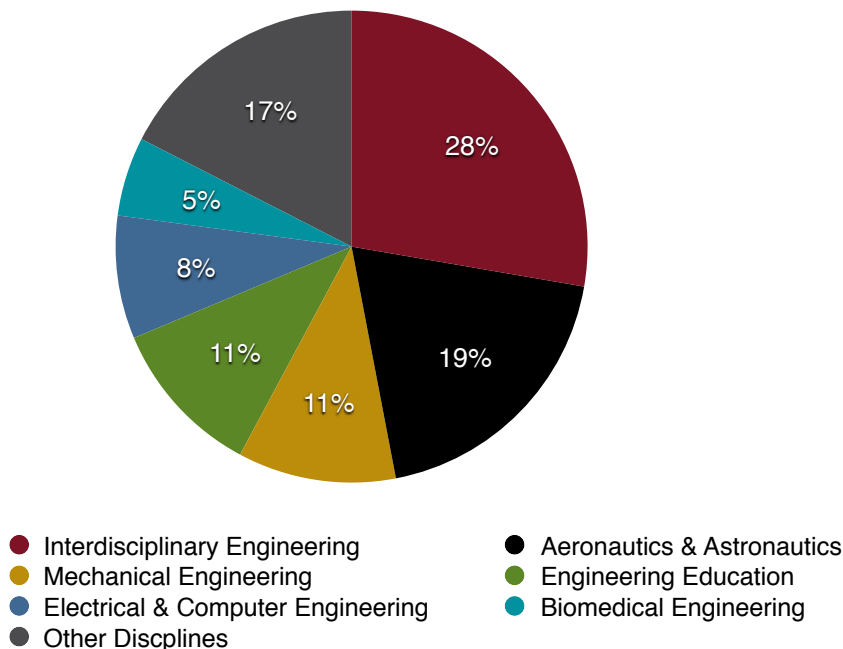
## GRADUATE ENROLLMENT



> Fall enrollment of students from URM backgrounds pursuing Masters and Doctoral degrees has held steady for the past four years. New strategic initiatives by MEP in graduate student recruitment and retention are planned for the upcoming year to increase graduate enrollment.

## BY DISCIPLINE

Graduate Enrollment in Engineering by Discipline - Fall 2016



> The top disciplines of graduate study for URM students in engineering are: Interdisciplinary Engineering, Aeronautical and Astronautical Engineering, Mechanical Engineering, Engineering Education, and Electrical and Computer Engineering.

# Recognition

## GRANTS AND AWARDS

### › National Science Foundation Grant Awarded

The Minority Engineering Program team in partnership with the School of Agricultural and Biological Engineering was awarded nearly \$1 million over five years from the National Science Foundation for the project entitled “Rising Scholars: Web of Support used as an Indicator of Success in Engineering” through the S-STEM award mechanism. This project will establish a support and mentoring system for underrepresented minority students from low socioeconomic status (SES) backgrounds in the Purdue University College of Engineering. Scholarship support will be provided for twenty academically motivated, low SES students to support four years of education in engineering. Students with low SES typically come from high schools with fewer resources than their wealthier colleagues, impacting their access to Advanced Placement classes and to academic support and tutoring for standardized exams, which can affect their placement in competitive engineering programs. This project will devise strategies and collect data to demonstrate that students that lack the competitive advantage of higher SES can successfully enter and complete an engineering major when the appropriate support mechanisms are provided. The core project team consists of Dr. Robert Stwalley rms3@purdue.edu (Principal Investigator), Dr. Morgan Hynes (Co-Principal Investigator), Virginia Booth Womack (Co-Principal Investigator), Dr. Carol Stwalley (Co-Principal Investigator) and Dr. Darryl Dickerson (Co-Principal Investigator).

### › Council for Manager Development

Dr. Darryl Dickerson was selected as one of 8 members of the Council for Manager Development (CMD) Class of 2018. Since 1956, the CMD program has worked with senior leaders from across the West Lafayette campus to develop our future leaders. CMD members are high-potential employees nominated to the Council by an executive (usually a direct report to the President). This program is sponsored by Treasurer and Chief Financial Officer William “Bill” Sullivan. CMD class of 2018 members represent the following areas on campus: College of Engineering, College of Science, Honors College, Office of Student Success, Physical Facilities, Purdue Police Department, Recreation and Wellness, and Transportation, Parking and Airport.

## COMMITTEES AND SERVICE

### › College of Engineering Dean Advisory Search Committee

Dr. Darryl Dickerson was selected by Provost Deba Dutta to serve as part of the 15-member Search Advisory Committee for the Dean of the College of Engineering. This team is tasked with finding a leader with a compelling vision for excellence in the mold of Dean Leah Jamieson.

## NATIONAL RECOGNITION

### › NAMEPA National Awards

At the 2016 National Conference of the National Association of Multicultural Engineering Program Advocates (NAMEPA), members of the Purdue University community received five awards for excellence in diversity, equity, and inclusion efforts. Most notable among the awardees was Dean Leah Jamieson. NAMEPA recognized Dean Jamieson as follows: “Her exemplary service to students, faculty, and the global engineering profession has raised the bar of excellence in broadening participation of engineering students and faculty from historically underrepresented minority (URM) groups. The NAMEPA Dean of Engineering Champion award was established to honor a dean who has catalyzed change to help students from URM populations overcome historic barriers. Awardees have gone above and beyond the basic responsibilities of a dean and have used their positions to advocate for systemic changes within their institutions that are instrumental to the success of students from URM groups in engineering.”

# Purdue University Hosts 2016 NAMEPA National Conference

National Association of Multicultural Engineering Program Advocates

## NAMEPA

### 2016 National Conference



“100 Shades of Diversity: Broadening Participation by Transforming Minds”



Purdue University is proud to be an Institutional Partner of the National Association of Multicultural Engineering Program Advocates (NAMEPA). NAMEPA is a national network of educators and representatives from industry, government, and nonprofit organizations who share a commitment to improving the recruitment and retention of Black/African American, Latino/Hispanic American, Native American, Native Hawaiian, and other Pacific Islander students earning degrees in engineering. Within the leadership, MEP staff play an instrumental role in the 2016-2017 direction of the organization. Under the direction of the President and Executive Director, Virginia Booth-Womack, Dr. Darryl Dickerson serves as Treasurer and Dr. Cinthia Sanchez serves as Programs Chair on the Board of Directors. Tasha Zephirin works as a Graduate Assistant for NAMEPA.

Purdue's support of and dedication to diversity, equity, and inclusion was prominent throughout the conference via workshop content, keynote speakers, sponsorship, conference participation, and awards. The generous sponsorship and support from the College of Engineering and the Division of Diversity & Inclusion enabled us to engage with the Purdue and NAMEPA communities to celebrate our past efforts and leave the conference energized with new tools and practices to cultivate diversity in engineering. Highlights of the strong Purdue presence include:

- K-12 Outreach Pre-Conference Training session - Dr. Morgan Hynes | Assistant Professor, Engineering Education and NAMEPA Thought Leader in Pre-College Engineering Engagement
- Workshop Presenters:
  - Dr. Alberto Rodriguez | Professor of Cross-Cultural Science Education
  - Dr. Audeen W. Fentiman | Associate Dean of Engineering, Graduate and Interdisciplinary Programs & Cyndi Lynch | Director of Fellowships and Professional Development, Purdue Graduate School
  - Dr. Kerrie Douglas & Dr. Allison Godwin | Assistant Professors, Engineering Education
- Keynote Speaker: Dr. Gebisa Ejeta, Distinguished Professor of Plant Breeding & Genetics and International Agriculture and 2009 World Food Prize Laureate
- Dr. Leah Jamieson, the John A. Edwardson Dean of Engineering and Ransburg Distinguished Professor of Electrical and Computer Engineering, received NAMEPA Dean of Engineering Champion Award
- Purdue MEP Engineering Academic Boot Camp (ABC) received NAMEPA Retention Program Award
- Dr. Eric Scott Furgason, Professor of Electrical Engineering, posthumously received NAMEPA Legacy Faculty Award
- Dr. James Jones, Associate Head and Associate Professor of Mechanical Engineering, received NAMEPA Diversity and Inclusion Champion Award
- Marion Williamson Blalock, former MEP Director, recognized for her service to NAMEPA as a past President. Marion also received the NAMEPA Legacy Champion Award, established to honor a pillar of NAMEPA community who has an extraordinary impact nationally through their dedicated service in fulfilling the NAMEPA mission
- Chanel Beebe, Engineering Education PhD Student and Poet, wrote and recited her poem “The Calling” honoring NAMEPA's legacy and Past Presidents

For more details on conference content and speakers visit [www.namepa.org/conference2016](http://www.namepa.org/conference2016)

Learn more and join the NAMEPA family at [www.namepa.org](http://www.namepa.org)



Plenary Session Speakers Jaime Pinkham & Laverne Bitsie-Baldwin addressed how to best serve Native American communities; Region E Chair, Scott Pinkham



Dean Leah Jamieson and Marion Williamson Blalock with current and former NSBE leaders at Legacy Awards



K-12 Pre-Conference Training: Educator Training and Student Engagement.



NAMEPA student support professionals from multiple institutions.

# Outreach

## > 6th/7th/8th Grade Summer Engineering Workshop (SEW)

Developed in 1976, MEP Summer Engineering Workshops were initiated to invite middle school students to Purdue University for a full week of discovery, engagement, and learning about college and careers in engineering. The workshops provide students with hands-on activities that make engineering come to life as well as academic preparation, particularly in math, to accelerate their pathway to college. In 2016, we hosted 52 students in this program. Other components of the workshops include:

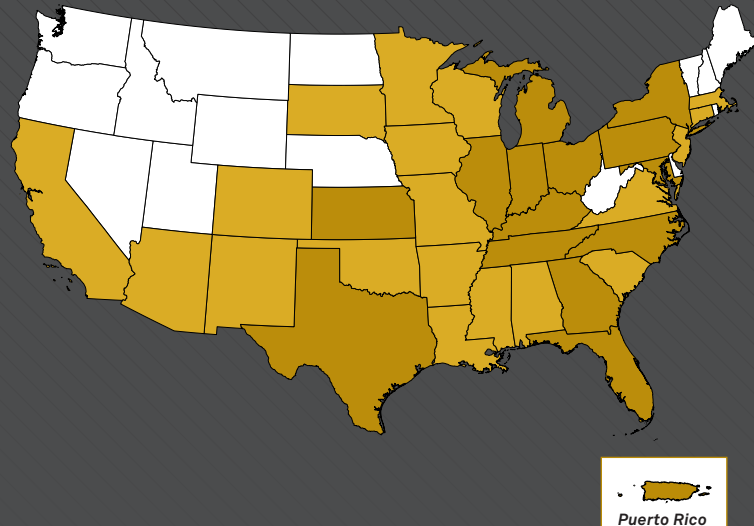
- Tours of engineering laboratories
- Engineering design process
- Academic success strategies
- Engineering careers and impact
- Campus life
- College preparation
- Life skills



## > PREFACE

In 1980, the Purdue University Pre-Freshman and Cooperative Education (PREFACE) program was developed for rising sophomore and junior year high school students. Similar in structure to SEW, the academic and engineering content is more advanced and additional focus is placed on college preparation including standardized test preparation. This past summer, we hosted 72 students in our PREFACE program and continue to look at program expansion.

## > Participants from SEW and PREFACE



> Summer Engineering Workshops have touched 1282 students from 34 states plus DC, Puerto Rico, as well as other countries (China, Colombia, Costa Rica, Ecuador, Guatemala, and Kuwait) over the past 10 years. State representation from this past year is noted in the darker gold. Note: map is not to scale.

## > MEP Ambassador Program & School Visits

Developed in 2014, the Minority Engineering Program (MEP) Student Ambassadors work with the MEP Program office staff to deliver outreach services to expose elementary, middle, and high school students to the field of engineering. The goal of the MEP Ambassadors is to increase interest in engineering by providing a positive STEM experience. The MEP Ambassadors deliver hands-on engineering projects to inspire and encourage students at an early age to pursue careers in engineering. This past year the MEP Ambassadors reached more than 500 pre-college students by visiting their schools.

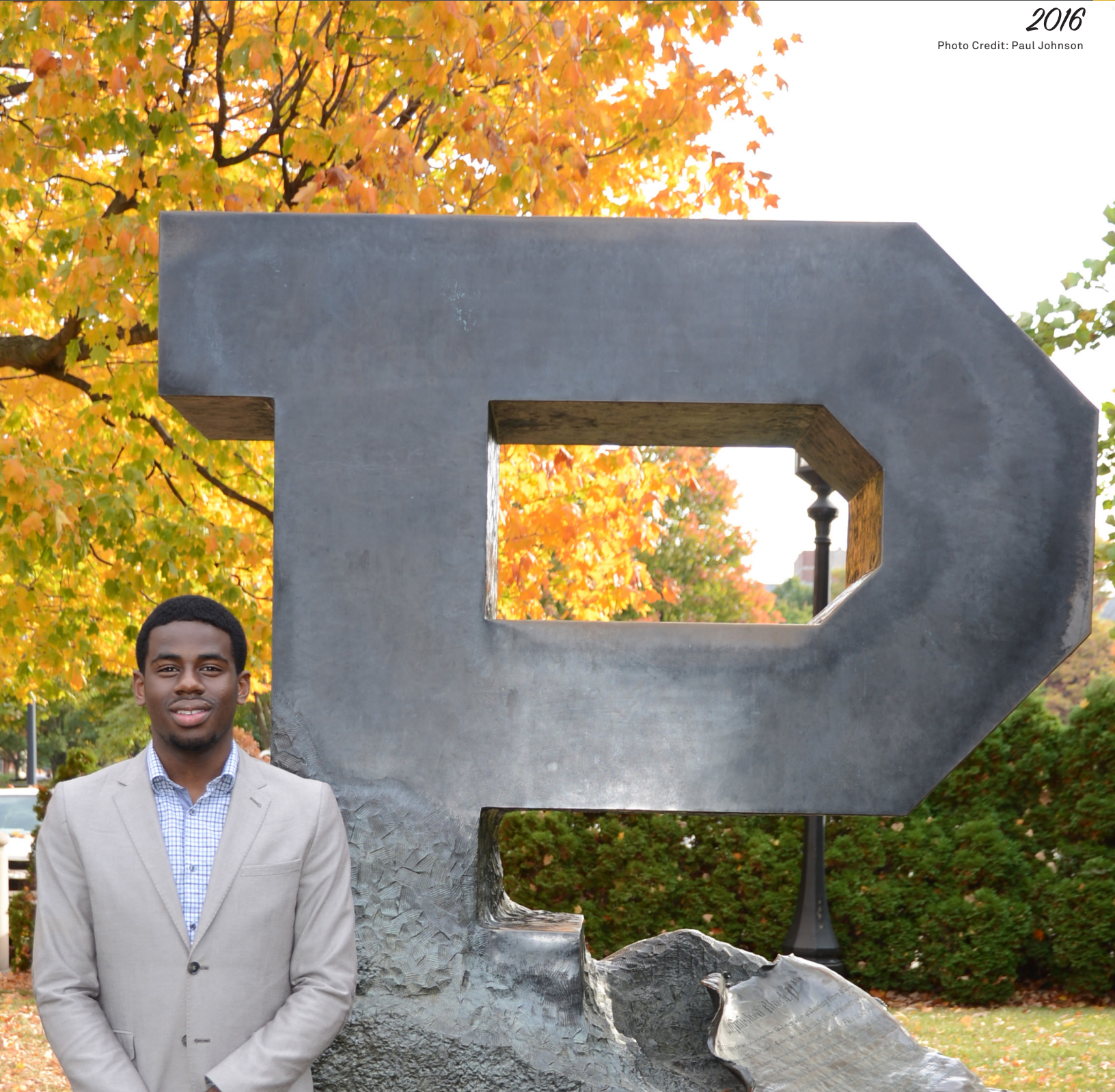
*"The MEP Ambassador Program has proven to be increasingly rewarding to me because it gives me the opportunity to show children that math and science aren't boring incomprehensible subjects, but rather fun and exciting subjects that spark their excitement for engineering, and I love helping them get to that point and experiencing that moment with them". -Jessica Avina, Electrical Engineering, Munster, IN*

## Brandon Wells, Freshman, First-Year Engineering Program, Hometown: Raleigh, NC

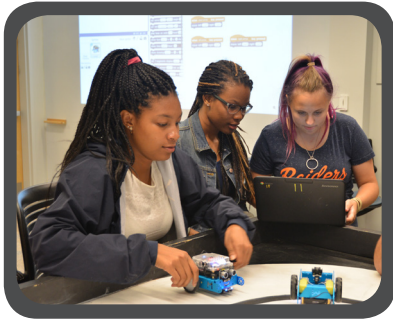
Brandon Wells first became involved with the Minority Engineering Program as a senior in high school participating of the MITE Academic Boot Camp. Brandon returned the following year for the Engineering Academic Boot Camp programs and is currently enrolled in the ENGR 180 seminar course. In addition to his involvement with the Minority engineering programs and pursuing his degree, Wells is part of the Purdue Honors College, Jazz Band, and Jazz Combos. According to Wells "If it wasn't for the MEP program reaching out to me my senior year, it is likely I wouldn't have attended Purdue. Dr. Cinthia Sanchez told me about the MITE program when I was visiting during college tour, and that is made me really consider Purdue as an option. The positive experience I had with the MITE program put Purdue high on my list for favorite schools, and the resources that MEP offers during the school year is what helped me make my final decision to enroll". Thanks to the GE Aviation plant tour in Lafayette during the boot camp  
.....  
Brandon received an internship offer this summer.

2016

Photo Credit: Paul Johnson



# Recruitment



## >MITE Academic Boot Camp

**Target Audience:** Selected Rising High School Seniors

**Goal:** Academic Preparation

The Multiethnic Introduction to Engineering (MITE) program was initiated at Purdue University in the summer of 1975. Originally a two-week program, MITE is now a five-week college simulation program modeled after the Freshman Engineering Academic Boot Camp. MITE attendees are immersed in first-year engineering courses including Chemistry, Calculus, and engineering projects. The agenda includes SAT review, engineering design, time management, and social acclimatization to college life. Student participants build a strong sense of community and are able to return to their high schools with a better evaluation of their potential. We have seen an average improvement in SAT math scores of 90 points. The highest increase was 300 points last year as measured through pre- and post-testing. All participants begin the application process to Purdue at the close of the program.

### University Collaboration:

MITE participants learn about all STEM disciplines during the five weeks. For one week, students participate in the Seminar for Top Engineering Prospects (STEP). Collaboration with the Purdue Bound Program and diversity directors in STEM have resulted in several MITE participants matriculating into the Purdue Polytechnic Institute and the College of Science in addition to engineering majors.

## >MEP PROMISE

**Target Audience:** Selected College-Ready High School Seniors

**Goal:** Apply to Purdue!

Purdue's Recruitment Of Minorities Interested in the Schools of Engineering (PROMISE) program was established in 1975. PROMISE is a two-day campus based recruitment effort designed for high school seniors. Participants learn about the admissions process, financial aid, the first-year engineering curriculum, and college success strategies. The agenda includes engineering classroom visitation, campus tours, meals in our world class dining halls, research laboratory tours, and social activities. At the close of PROMISE, participants have the opportunity to complete their applications. PROMISE is offered at no cost to the participants and occurs before the admissions application deadline to ensure students are considered for scholarships. Students are responsible for their travel to and from campus. In 2015, the PROMISE program hosted 28 participants from 11 states including Puerto Rico.

### University Collaboration:

MEP collaborates with the Office of Admissions by offering office visits to underrepresented students and interested families who visit during Fall Preview Days. This collaboration provides another opportunity for prospective families to visit and learn more about the MEP support.

## >MEP Engineering PREVIEW

**Target Audience:** Admitted Engineering Students

**Goal:** Choose Purdue!

Engineering Preview was launched in 1975 to encourage students who have received offers of admissions to choose Purdue. The average yield (percentage of students accepting their offer of admissions) of URMs in the College of Engineering is 18%. Preview is a two-day program that gives participants an opportunity to meet and hear from current engineering students, faculty, and staff about their experiences and have their questions answered regarding life at Purdue. The yield for MEP Engineering Preview participants last year was 50%. Engineering Preview is provided at no cost to participants, except for their travel to and from campus. This past year the PREVIEW program hosted 36 participants.

### University Collaboration:

**Office of Admissions:** The Admissions-based Destination Purdue program collaborates with MEP Preview by providing campus and cultural center tours, organizing additional student panels, and providing information and materials to assist with yielding students to Purdue.

The Office of Admissions also hosts a campus visitation day called BoilerTracks Day. This event is a cross collaboration of all Multicultural and Minority Program Directors to invite admitted students from Indiana and Chicago for a campus experience at no cost except travel to campus.



2016  
Photo Credit: Paul Johnson

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**Jessica Avina, Junior, Electrical Engineering, Hometown: Munster, IN**

Jessica Avina is currently a junior pursuing a degree in Electrical Engineering. Jessica's pathway to Purdue was through participation in MEP's PROMISE program. She has immersed herself in the Purdue experience and serves as an MEP ambassador, and a Boilermentor. Reflecting on her Purdue experience, Jessica notes: "Aside from help in actual coursework, MEP has provided a community where I was able to find an older student that gave me advice on my major and helped me build a schedule when I had no idea what to do. From sitting in Dr. Sanchez's office freshman year to get help on my resume, to sitting in Mrs. Womack's office this year to get advice on which internship offer to accept, MEP has professionally benefitted me substantially. MEP has positively affected me as an engineering student by providing me a support system to get through a difficult major, resources to help me academically with challenging classes, and events to help me professionally as a future engineer".

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# Retention

## > First Year Retention

While the academic rigor and Purdue environment present a difficult transition for students in general, underrepresented minorities may face additional obstacles such as academic and social isolation and negative stereotypes. We know that every student admitted to Purdue has the ability to successfully attain a Purdue Engineering degree and our role is to ensure that students have the confidence, resources to achieve their goals, and find their place as extraordinary engineers within the Purdue Engineering community. For incoming students, participation in our two transition programs, the Engineering Academic Boot Camp (ABC) and Engineering 180 (ENGR 180), is correlated with a higher first-year retention rate for underrepresented minorities.

## > Engineering Academic Boot Camp (ABC)

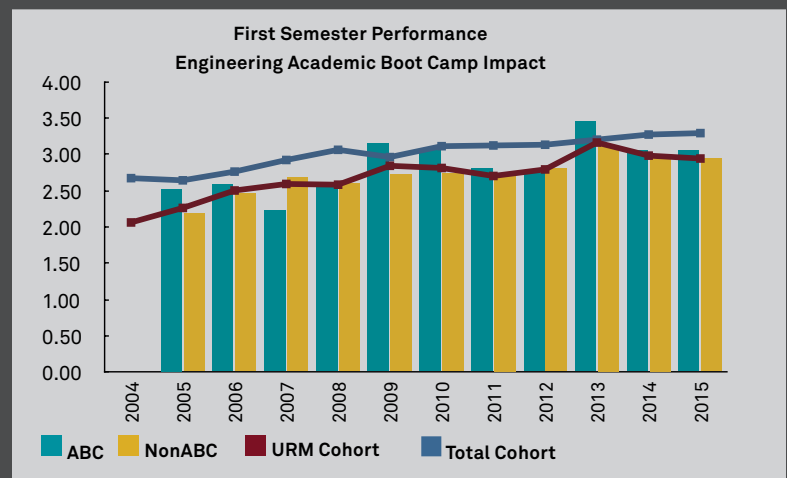
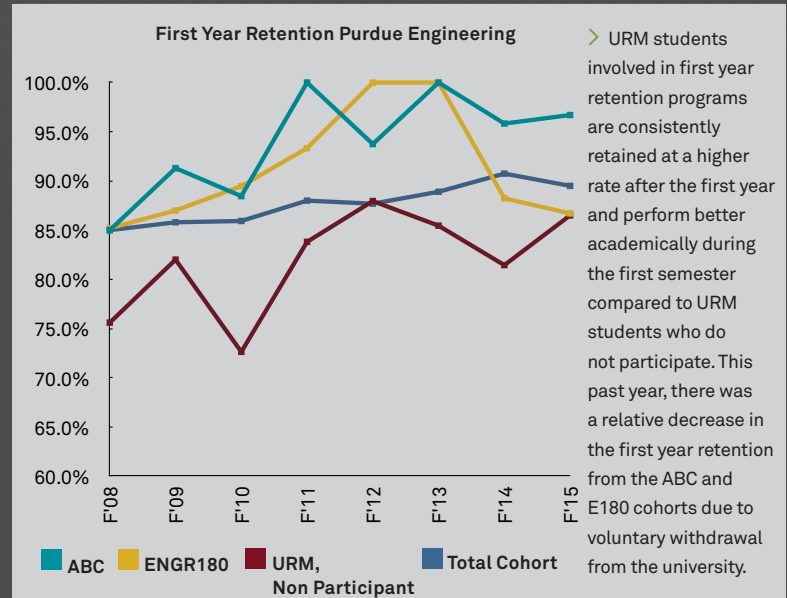
Launched in the summer of 2005 in the College of Engineering, the Engineering Academic Boot Camp was developed to improve the transition of underrepresented engineering students into the majority campus culture. Former MEP Assistant Director Allene Manning developed a structure that condensed a full semester of work into a non-credit bearing five-week simulation of the first semester engineering experience at Purdue. Calculus, Chemistry, MATLAB programming, English, and an engineering design project were included along with professional mentoring, corporate tours, time management, team building, and social activities. Embracing the best practices of learning communities, engineering students were required to live, study, and have classes together in preparation for global competition in the fall. In 2006, the College of Science and the Purdue Polytechnic Institute adopted the Academic Boot Camp model; the College of Agriculture was later included. Each college designed their programs to align with the needs of their college. After a three-year pilot period, the Engineering Academic Boot Camp has demonstrated the importance of transition of URMs into a majority institution in achieving first semester performance and first year retention in engineering.



*My Academic Boot Camp experience was by far the best time I have had at Purdue so far. The friends and memories made at this 5-week program are ones that will last a lifetime. In addition, the MEP Academic Success Center has been a huge help in transitioning from high school to college. There are so many helpful resources, including the various upperclassmen that can help guide the freshmen in the right direction. The people and the place have begun to feel like home. - Isra Abdelsalam*

## > Engineering 180 (ENGR 180)

Engineering 180, the Minority Engineering Program Seminar, was established in 1987 to promote awareness of campus-wide academic and non-academic support systems; to facilitate interaction between students, faculty, staff, upperclassmen, alumni, and corporate sponsors; and to develop and share strategies for academic and professional success. Open to all students, it offers a platform for corporate and alumni supporters to meet and greet students as mentors and/or prospective employers. Through weekly assignments, students develop content for a personal portfolio to guide their educational development and showcase their personal, professional, and technical skills.







2016

Photo Credit: Darryl A. Dickerson, PhD

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**Linda Johnson, Senior, Mechanical Engineering, Hometown: Brandywine, MD**

Linda Johnson first became involved with MEP after she was accepted to Purdue and visited during Engineering PREVIEW. She has been a mainstay in MEP ever since. She says “My experience with MEP has been such a positive one. Every time I walk through the door I am greeted by my peers and other students working in the tutorial center. I like to greet the program administrators and update them on my progress in my classes because they genuinely care. They are always honest and objective while remaining empathetic. I have never encountered a problem in my education endeavors that I was not able to solve by talking to someone in MEP or seeking advice from the administrators. MEP is a home away from home.” While finding community here within MEP, Linda has also been active across campus as a past officer of the National Society of Black Engineers, doing outreach with the Women in Engineering Program, and as the current Vice-President of the Purdue Mechanical Engineering Ambassadors.

# Retention

## > Academic Success Center

The Minority Engineering Program (MEP) Academic Success Center is located in the Neil Armstrong Hall of Engineering. The Center offers a dynamic environment for study and collaborative learning for all students with free tutoring services in gateway engineering courses, supplemental instruction, and exam prep sessions. The goal of the Academic Success Center is to provide strategies for learning and interventions leading to academic excellence. In 2015, through the end of November, the Academic Success Center has been visited 3,018 times. The analysis of center usage demonstrates that more frequent attendance correlates with increased first semester academic performance.



## > Scholarships

Through gifts from our alumni and friends, endowments, university funds, and generous corporate and non-profit support, MEP offers a number of scholarships to reward academic achievement and provide need-based support to students. We currently support more than 160 students through our holistic scholarship program. In a survey of students who declined their offer to attend Purdue, more than half cite financial reasons for their decision. MEP scholarships have been an instrumental tool in improving student access and success by making attendance more affordable.

## > BoilerMentor Program

MEP partners with Division of Diversity and Inclusion in the BoilerMentor program providing peer mentoring to incoming students who are recipients of the Emerging Leader scholarship as well as other exceptional students. The program connects students from diverse backgrounds to resources and leadership development opportunities across campus that will support academic success and social inclusion through a peer mentor experience. Through this program, BoilerMentors assist their fellow students in creating an inclusive network that involves upperclassmen and graduate students, faculty, staff, and alumni.

## > Student Organizations

We have a rich 40+ year history with student organizations that promote diversity and inclusion in engineering. The oldest organization on campus is the National Society of Black Engineers (NSBE), founded at Purdue University in 1975. The most recent diversity-focused student effort is the Latinos in Science and Engineering (MAES) organization. The Purdue chapter of MAES was established in 2009. MEP formally advises the Purdue chapters of NSBE and MAES, and we provide support to the American Indian Science and Engineering Society (AISES) and the Society of Hispanic Professional Engineers (SHPE). Involvement in these student organizations is correlated with higher retention rates and higher academic performance compared to peers.



### ***American Indian Science and Engineering Society (AISES)***

To increase substantially the representation of American Indian and Alaskan Natives in engineering, science, and other related technology disciplines.



### ***Latinos in Science and Engineering (MAES)***

To promote, cultivate, and honor excellence in education and leadership among Latino engineers and scientists.



### ***National Society of Black Engineers (NSBE)***

To increase the number of culturally responsible black engineers, who excel academically, succeed professionally, and positively impact the community.



### ***Society of Hispanic Professional Engineers (SHPE)***

SHPE changes lives by empowering the Hispanic community to realize its fullest potential and to impact the world through STEM awareness, access, support, and development.



Photo Credit: Darryl A. Dickerson, PhD

2016

## STEM on the Hill //

**Jeremiah Jones, Ana Paula Pineda Bosque, Jennifer Escobedo, Malachi Boyd (pictured above left to right) and Purdue MEP join NAMEPA and ASTRA for Congressional Visits Day**

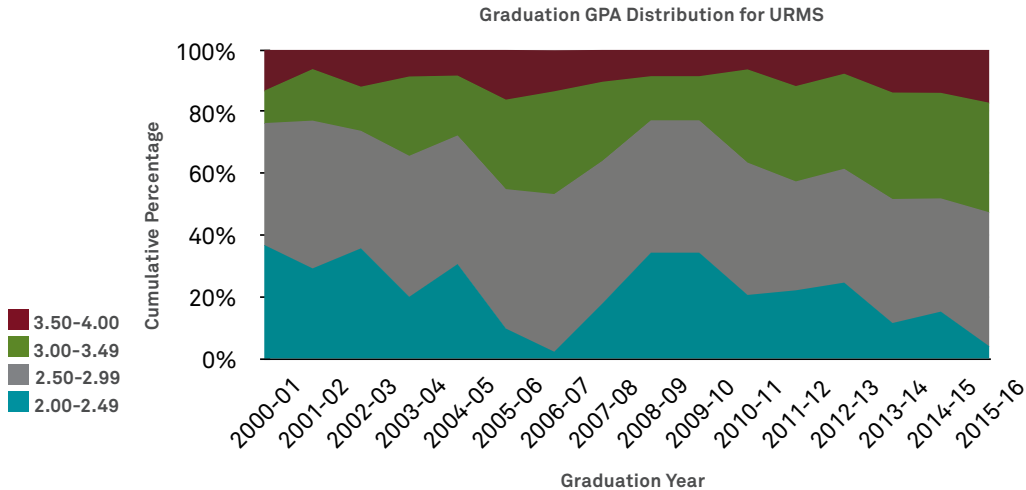
Congressional Visits Day - STEM on the Hill is a two-day annual event in Washington, DC organized by the Science-Engineering-Technology Working Group to bring engineers, scientists, researchers, educators, executives, students, and other stakeholders to raise awareness on and increase support for Science, Engineering, and Technology. Many converge on Washington to advocate for STEM and STEM initiatives through meetings with Members of Congress, Congressional staff, Key Administration officials and other decision-makers.

NAMEPA and Purdue MEP participated in the two-day program on April 12-14, 2016. This NAMEPA pilot year focused on engaging local student organization leaders in the program. The pilot was led by three MEP staff members and NAMEPA board members (Dr. Cinthia Sanchez, Dr. Darryl Dickerson and Mrs. Virginia Booth-Womack) and four student leaders from the Purdue University NSBE and MAES student organizations. Student leaders prepared two pitches around the topics of college affordability and increasing diversity in STEM careers to share with congressional leaders and their staff members. Students met with the following members of congress: Representative Todd Rokita, Senator Joe Donnelly, Senator Lamar Alexander and Senator Dan Coats. In addition, students met with Lisa Mensah, Under Secretary for Rural Development in the Department of Agriculture.

**Malachi Boyd** is a Purdue alumni, he graduated with a Bachelor degree in Visual Design Engineering in 2015. Boyd was the past president of the Purdue National Society of Black Engineers (NSBE) Student Chapter. Boyd, originally from Memphis, TN, is currently working as a Sr. Drafter at Whirlpool Corporation. **Jennifer Escobedo** was born in Norwalk, California but has lived the majority of her life in Lafayette, Indiana. She is currently studying at Purdue University, working towards her Bachelor of Science in Chemistry. She is the current president of the Latinos in Science and Engineering (MAES) Student Organization. **Jeremiah Jones** is a sophomore in Industrial Engineering from Indianapolis, Indiana. He is an MEP Ambassador and a member of the Purdue NSBE chapter. **Ana Paula Pineda Bosque** was born in Washington DC but has lived in Maryland, the Dominican Republic, and Indiana. She is pursuing a Bachelor of Science in Aeronautical and Astronautical Engineering at Purdue University. She is the past vice president of the Latinos in Science and Engineering (MAES) Student Organization.

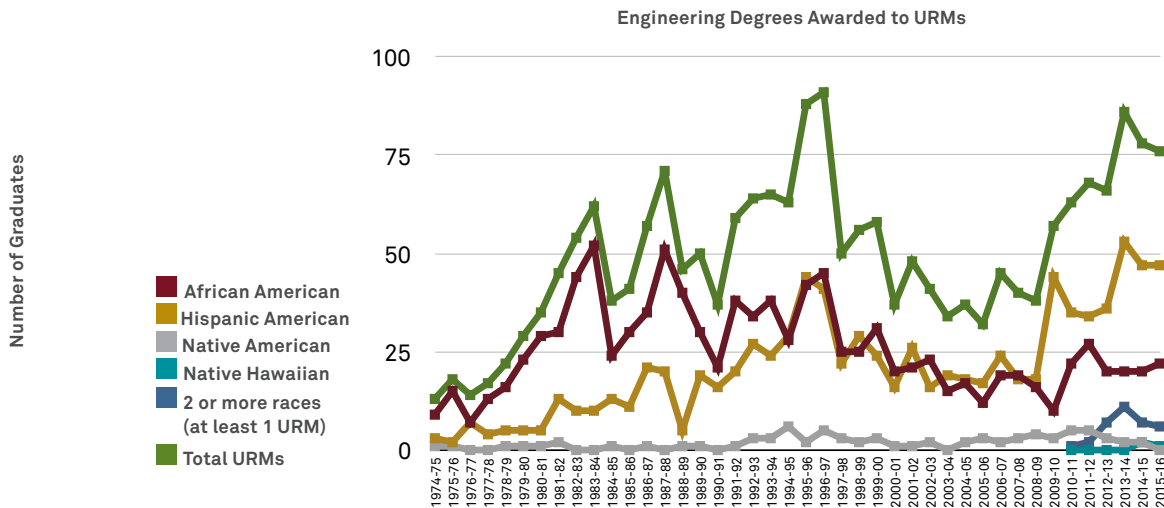
# Graduation

## GRADUATION GPA DISTRIBUTION



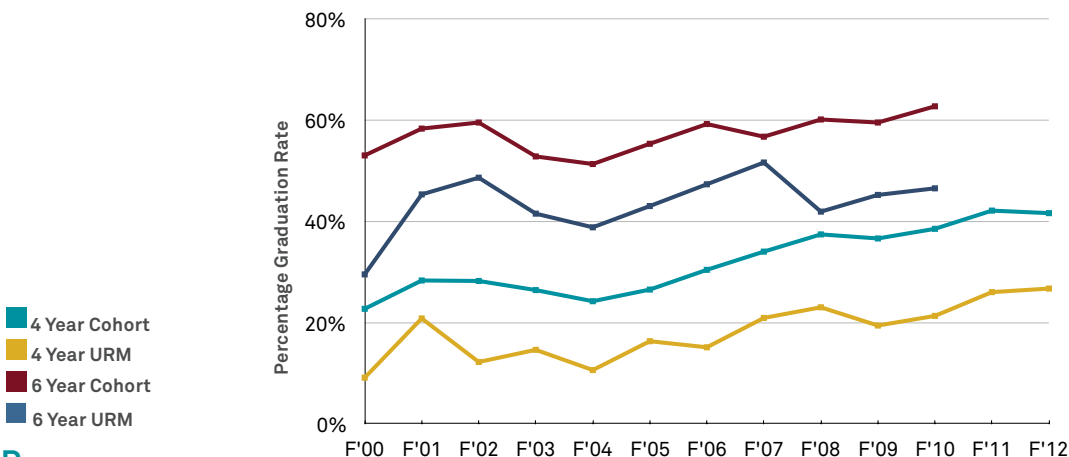
➤ GPA distribution at graduation for URMS in engineering has trended towards higher performance. Since 2013, nearly 50% of graduates were above a 3.0 grade point average.

## DEGREES AWARDED



➤ Bachelor's degrees awarded to URMs in engineering over the last 40 years correlate with enrollment trends. The current upward trend in degrees awarded since 2008 reflect enrollment increases since 2001.

## GRADUATION RATES FOR URMS



➤ The graph displays 4- and 6-year graduation rates for URMs and the total cohort in the College of Engineering for the cohort starting in the fall of the year listed. All graduation rates for URMs have steadily trended upward since 2004.

.....  
**Brandon Sells, MS Student, Aeronautical and Astronautical Engineering, Hometown: Tyaskin, MD**

Brandon Sells is currently a graduate student pursuing a masters degree in Aeronautical and Astronautical Engineering. Brandon worked with MEP as a program assistant in the 2016 Summer Engineering Workshops where he had the opportunity to impact underrepresented populations using engineering. Brandon said “It was exciting to see the enthusiasm and positive progress from the students during each engineering challenge”. The program helped Brandon refine his engineering fundamentals, communication skills, and program development skills. These skills enabled him to progress his research project and develop influential initiatives with the Black Graduate Student Association as the Vice President. “MEP has impacted my academic development through mentorship and provides me more exposure to engineering professionals by way of programming and collaboration.”  
.....

*2016*

Photo Credit: Paul Johnson



# Total Giving FY 2016

## ALUMS & FRIENDS

### TOTAL GIFT \$25,000-\$99,000

Don and Liz Thompson

### \$10,000 - \$24,999

Aidoo Osei

### \$1,000 - \$9,999

Sandy Alston-Childs  
Marion Blalock  
Gary and Lynn Cummings  
Akasha N. Davis  
Marvis and Odell Johnson  
Lara and Wayne Kauchak  
Don and Mary Newsom  
Bill and Marian Roach  
Barrett and Janet Robinson  
Sandy Rogers  
Janet Y. Spears  
Michelle R. Spencer  
Sonia A. Teran

### \$100 - \$999

Bose E. Agnew  
Kevin T. Alcorn  
Anita S. Asuquo  
Ernesto Barajas  
Fay Barber-Dansby  
Amos H. Belcher  
Alonzo S. Bright  
Danny and Sandra Brown  
Sharika A. Brown  
Tracy A. Brown  
Sidney and Greta Bryson  
Vincent C. Bush  
Carlos A. Cabrera  
Emily R. Chavez  
Corey L. Collins  
Frederick and Carol Cooper  
Jacquelyn Cooper  
Michael S. Courtney  
Tony Crawford  
Harish Dadoo  
Nicholas E. Davis  
Richard and Georgeann Davis  
Bryan Dennis and Yolanda Hockaday-Dennis  
Darryl A. Dickerson  
Daryl E. Dunbar  
Joi R. Edwards-Haynes  
Pat Egan  
Yonatan A. Feleke  
Vicente H. Garcia  
Jerry Good

Jessica N. Hartley  
Heather and Steve Hassenplug  
Paul M. Holmes  
Todd A. Hood  
Inez Hua  
Jill and James Inglis  
Rochelle L. Jackson  
Kimberly P. Johnson  
Pam Johnson  
Mike and Ellen Jones  
Darren Jones  
Anne S. Kim  
Liz and Dave Klimes  
Kathy and Klod Kokini  
Bronson W. Lightford  
John A. Malone  
Lindsay Martin and Trineice Robinson-Martin  
Chris Maziar  
Anna-Maria McGowan  
Ekow and Marie Mensah  
Stacey S. Milton  
Sriram Nageswaran  
Mary and Eric Nauman  
Delfreda L. Norman  
Carolyn Percifield  
Jeffrey B. Pitcock  
Tory Pitts  
Mark A. Rode  
Herman H. Rose  
Justin S. Sampson  
Samantha A. Sanders  
Elizabeth A. Shay  
James C. Skridulis  
George and Stephanie Smith  
Georgette A. Smith  
Emily Staples  
Nikkia S. Starks  
Steven R. Streeter  
Tonya R. Strong-Charles  
Sonia A. Teran  
Dexter and Elana Thompson  
Roderick A. Watts  
Tina S. Williams  
Samuel G. Wilson  
Terri and Jeffrey Woodard  
Virginia Booth Womack and Richard Womack

### Up to \$99

Kevin T. Alcorn  
DeAnna and Jorge Alvarez  
Tonia and Clarence Archibald

Jeanne E. Banks  
Sandra C. Bartlett  
Doug Beal  
Scott A. Beasley  
Ian H. Bell  
Elizabeth K. Berkovitz  
Janice D. Brewer  
Hilary A. Butler  
Jeanne L. Butler  
Brenda and Wesley Campbell  
Cynthia J. Cobb  
Michael S. Courtney  
Tony Crawford  
Richard and Georgeann Davis  
Osra and Tracy DeLong  
Jean-Pierre Devieux  
Doug Ding and Sarah Toy-Ding  
Robbin R. Edmond  
Gregg S. Ferguson  
Herminio Garcia  
DaLana C. Guess  
Jessica N. Hartley  
Ilenia Herrera-Lutz and Scott Lutz  
Joan and Keith Horenstein  
Christine D. Jackson  
Pam Johnson  
Sean R. Kovich  
Tina C. Kuo  
Joel M. Lugo  
Tanya D. McKee  
Stan Merritt  
Dominic and Carla Montoya  
Efosa M. Ogiesoba  
Margaret Ogiesoba  
Claude M. Oliver  
Brad and Janet Pape  
Carolyn Percifield  
Michael A. Puglisi  
Bryce E. Randle  
Sabrina M. Reed  
Virendra Sharma  
Linda L. Smith  
Waleska Soto and Juan Gonzalez  
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James and Suzankaye Szubryt  
Leslie R. Taylor  
Paul C. Thomas  
William and Debra Vance  
Bryant C. Williams  
Laverne D. Wisdeom  
Carol and Jason Wooden  
Darius and Jennifer Wright

## CORPORATE DONATIONS

### \$30,000 AND ABOVE

General Motors Foundation  
NACME

### \$20,000 - \$29,999

Chicago Community Foundation  
Ethicon Endo-Surgery  
United Technologies

### \$15,000 - \$19,999

Air Products Foundation MGP

### \$10,000 - \$14,999

Accenture  
Alcoa Inc.  
ArcelorMittal USA Inc.  
Boeing Defense, Space & Security  
Delphi Foundation, Inc  
Shell Oil Company

### \$5,000 - \$9,999

Caterpillar Incorporated  
Deere & Company  
ExxonMobil Chemical Company  
Kimberly-Clark  
National Society of Black Engineers  
Northrop Grumman Foundation  
Phillips 66 Company  
Qualcomm Charitable Foundation

### \$1,000 - \$4,999

Dow Chemical Company  
Emerson Charitable Trust  
Lockheed Martin  
Marathon Petroleum Corporation  
Network for Good - Accenture  
Northrop Grumman Corporation  
YourCause, LLC Trustee for Chevron Matching Employee Funds

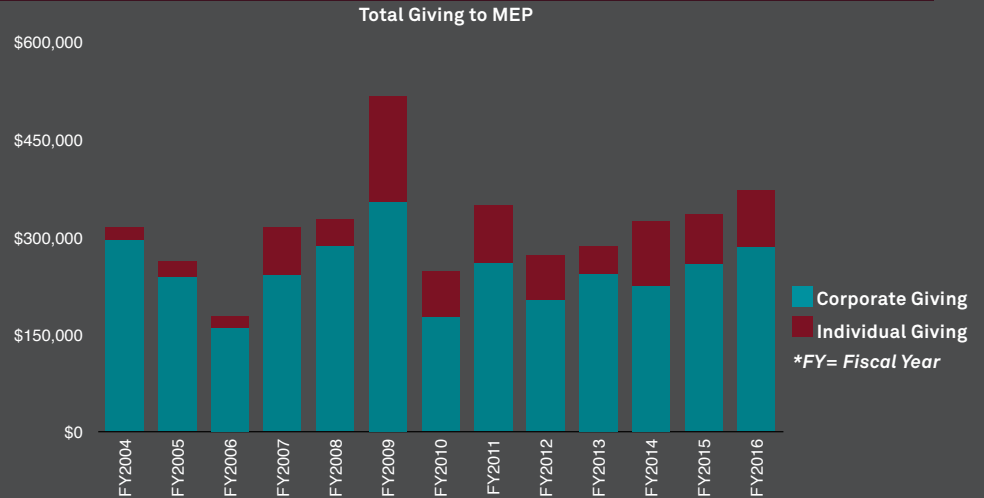
**\$100 - \$999**

Johnson & Johnson  
 LinkedIn Matching Gifts Program  
 Northrop Grumman Foundation  
 The Boeing Company Gift Match/BPAC  
 Program  
 YourCause - AT&T

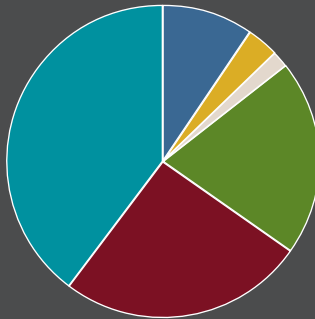
**Up to \$99**

Intel Foundation  
 Lockheed Martin University Matching  
 Gift Program

## Annual Giving Trends

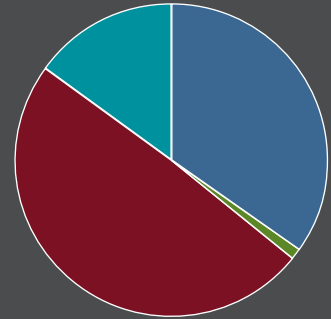


## 2016 Annual Program Budget



**MEP Expenses**

- Administration
- Communications
- Recognition
- Pre-College Outreach
- Recruitment
- Retention



**MEP Income**

- Program Registration
- University Funds
- Corporate Gifts
- Alums and Friends



We welcome all of our alumni and friends to join us in our efforts to support the Minority Engineering Program. We are taking part in the *Ever True: The Campaign for Purdue University* capital campaign, through which we would like to expand our programs and grow the number of underrepresented minority engineers at Purdue. The campaign is an exciting endeavor with transformative potential and is made possible both by the generosity of our alumni and friends and by the commitment of our faculty, staff, and students. If you would like to make a contribution, please go to [giving.purdue.edu](http://giving.purdue.edu) or contact Hilary Butler at 765.494.6383 or [habutler@prf.org](mailto:habutler@prf.org).

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Designed by: Heather Marie Coar and Dr. Darryl A. Dickerson, 2016  
EA/EOU

**Minority Engineering Program**

Neil Armstrong Hall of Engineering, Room 1264  
701 W. Stadium Avenue  
West Lafayette, IN 47907-2045

765.494.3974

[mep@ecn.purdue.edu](mailto:mep@ecn.purdue.edu)

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