

PECAP Program Celebrates Successful Inaugural Year

In 2002, Assistant Dean for Diversity Sylvanus Wosu created the Pitt Engineering Career Access Program (PECAP).

The PECAP Program works to increase the recruitment and retention of students who contribute to the diversity of the School of Engineering, (including African American, Hispanic and Native American, women, and academically or economically disadvantaged students.) "PECAP stems from the belief that a student's academic preparation for engineering should begin early and must continue throughout college," says Wosu. "By addressing deficiencies in K-12 math and sci-

"...academic preparation for engineering should begin early and continue throughout college."

Sylvanus Wosu

ence curricula and developing skills through hands-on experience, PECAP will better prepare students for an engineering education and increase the number and quality of engineering graduates."

Celebrating Our Diversity



CARE students gather after soapbox derby.

PECAP has two components—the pre-college component, consisting of the Investing NOW and Critical and Analytical Reasoning (CARE) programs, and the college component, called the EXCEL Program. The EXCEL Program houses the Summer Engineering Academy (SEA) and the Mentoring Program for Excellence in Engineering (MPE2).

The Investing NOW program is comprehensive college preparatory program; the CARE program focuses specifically on students with an interest in engineering. This year, 100% of Investing NOW graduates went onto college. Ninety-six percent of CARE students, who are pre-11th and pre-12th graders, reported that the summer program contributed to their educational growth.

The College Component also enjoyed an successful year. Eighty percent of the students attending the SEA Program reported that the activities increased their competence in science, engineering and mathematics. This year, five

students participated in MPE2. The 2004 CARE program is currently underway and the 2004 SEA program will take place in late August.

Related Stories

- **CARE to Launch Residential Program (2)**
- **Hands-on-Science (2)**
- **Investing NOW Graduates (2)**
- **Mentoring Program for Excellence in Engineering (3)**
- **Tutoring Helps Students Excel (3)**

Other Features

- **Student Honors (4)**
- **Diversity in Action (5)**
- **Graduate Diversity (6)**

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Pre-College News

CARE to Launch Residential Program

CARE (Critical and Analytical Reasoning Enrichment) Program, a rigorous pre-engineering program that assists students in developing the critical thinking and analytical reasoning skills needed for a career in science, mathematics, engineering, or technology, will invite 40 – 50 rising high school juniors and seniors to participate in a campus-based summer experience from June 28 to July 31, 2004. Students will take college level math and science courses as well as Kaplan SAT Prep, writing, public speaking and study skills classes. In addition, CARE students will participate in seminars and hands-on engineering projects designed to increase their understanding of various engineering fields. Students will reside in campus housing at no cost and will receive a



stipend upon successful completion of the five-week program.

The target population is high achieving students with the potential to contribute to the School's diversity, (including African American, Hispanic, Alaskan Native, Native American and Pacific Islander students, females of any

ethnicity, and academically or economically disadvantaged students) who are considering math or science-based careers and reside in Pennsylvania, Maryland, the District of Columbia, Ohio and New York. CARE is funded in part by a FIPSE grant from the U. S. Department of Education.

Young Ladies Forum and Young Male Forum

Because true student success requires more than just academic achievement, the PECAP Pre-College Component offers discussion and support groups to nurture the emotional and social well-being of student participants.

The Young Ladies Forum, which is led by Alpha Lambda Omega Sorority, provides girls in grades nine through twelve with an opportunity to interact with current college students and learn how to conduct themselves in challenging social situations. Through Young Ladies Forum, students participate in discussions, community service activities, and field trips.

The Young Male Forum provides the young men of PECAP Pre-College Component with support and encouragement as they strive to achieve success. Students participate in sessions where they discuss topics such as goal setting, resisting negative peer pressure, and balancing academics and athletics.

Hands-on-Science

PECAP continued and expanded its successful Hands-On Science (HOS) Component this school year. Through Hands-On Science, students participate in 3 – 4 Saturday morning workshops that introduce them to activities common to a variety of science and engineering fields. This year PECAP students attended activities in the Electrical, Materials Science, and Mechanical Engineering Departments, in the Schools of Medicine, Nursing, Health and Rehabilitation Sci-

INVESTING NOW Congratulates Graduates

AmandAddo
Elham Alibeji
Tasha Andrews
Brittany Arnold
Shawn Biggs
Phillip Boyd
Kelsey Brentley
TaRonda Brown
Charles Bruce
Latrice Chalmers
Allen Chapman
Jessica Cipollone
Hoai Dang
Kari Dickerson
Sarah Ford
Robert Franklin
Sharmaine Gamble
Clifford Green
Danielle Harvey
Tosha Hawes
Kristin Hayes
Fallon Jethroe
Erik Jetter
Tekeyla Jones
Hector Lopez
Caleb Miner
Thomas Moore
Samuel Morant
Lishan Mou
Chabala Mwelwa
Natasha Parr
Tamara Rainey
Janina Samuels
Haryanti Sundari
Christian Shannon
Brandon Smith
Chalvonna Smith
Maurice Spencer
Alicia Thomas
Jamar Thrasher
Naomi Walker
Angela Wilson

ences and Pharmacy, and in Physics and Chemistry. Students also attend an engineering activity at Geneva College.

Hands-On Science Component owes its success to the commitment of the faculty, staff and students who give up one or more Saturday mornings to increase PECAP students awareness of math, engineering and science careers. HOS activities consistently receive high marks from student participants.

College Component News

Mentoring Program for Excellence in Engineering

On October 1, 2001, Sylvanus Wosu, (Assistant Dean for Diversity and Professor in Mechanical Engineering) started a new program in the School of Engineering, **Mentoring Program for Excellence in Engineering** (formally known as Minority Engineering Mentoring Program (MEMP)). The focus is on enhancing engineering education in the School by academically preparing students who contribute to the School's diversity for a graduate education in engineering. The primary strategy is to identify highly qualified students with strong potential and motivation for graduate school in engineering fields, and to keep them focused and supported to reach that potential. The program implements a systemic approach of increasing the number of women and under-represented and/or academically disadvantaged students who are better prepared and motivated for engineering education at Pitt.

Academic mentoring is a collaborative process of academically challenging, encouraging, and guiding students to maximize their full potential and to achieve higher academic goals than they would have achieved without a mentor. A systematic mentoring partnership for graduate education involves a voluntary, developmental, sharing, helping, and encouraging relationship, institutionalized to enhance academic excellence and motivation for a graduate education. The three components of the relationship are: *the Mentee (Protegee), the Partnership, and the Mentor*. The partnership focuses on advanced academic support activities during the student's entire undergraduate career and is created by the training activities (teaching and/or research) that the mentor engages in with the students. Usually, external factors such as peer pressure, family, and other environmental factors, which tend to affect the partnership, are controlled through frequent performance assessment of the results and feedback. Corrections are made as early as

possible to accomplish the objective – a student aspiring to attend graduate school.

The goal of MPE2 is to help students who contribute to the School's diversity develop an ambition for an advanced engineering education and to help transform that ambition into a reality by using faculty mentors as the “model of identity” and the “brain to pick”. The mentors play the role of supporting, pushing, and influencing the desired learning behavior and experience for the dream (ambition) to come true. A measure of the output of such an approach is the increase in the number of well-prepared graduating students aspiring for a graduate engineering education. Thus, the mentoring program is a comprehensive educational plan designed to promote advanced academic achievement and consists of three major focus areas: (1) Student Retention and Continuous Performance Evaluation; (2) Undergraduate Research Enhancement; and (3) Transition to Professional Work or Graduate School.

At this year's EXCEL Senior Recognition Lunch, awards were given to the top mentors and mentees. Dr. Sanjeev Shroff was presented with the Mentor of the Year award for 2003-2004. A mentee who has worked with him closely commented, “He is down-to-earth and approachable – he is able to talk to students in a manner which helps them understand very complex topics. He is always available to help the students – he is always willing to stop whatever he is doing to answer questions. He genuinely enjoys teaching – he spends a tremendous amount of time preparing for his classes and wants students to understand.” Dan Debrah was presented with the Peer Mentor of the Year Award. School of Engineering Dean Gerald Holder commented, “He serves as a beacon to other students, showing them how much can be achieved through dedication and perseverance.”

Sophomore Daniel Armanios was awarded the Mentee of the Year Award for his perseverance and outstanding performance in engineering research. He was also awarded the Research Project of the Year Award.

Tutoring Helps Students EXCEL

"He who asks a question is a fool for five minutes, he who does not ask a question remains a fool forever."
-Chinese proverb

The preparation involved in becoming an engineer is not easy. The social adjustments of the freshman year coupled with the class workload can be stressful for many students. To ease this transition, the EXCEL program provides students with tutoring. Four tutors, all graduate students, provide walk-in appointments and regularly scheduled sessions in Physics, Chemistry, Mathematics and Engineering 012. Tutors can provide techniques different from those explained in class and also expand on the class discussion. They help students by explaining the approach to solving the different problems. They provide guidance in how to solve homework problems, and review mistakes made on tests. Most importantly, tutors are students who have successfully survived the engineering curriculum and have the knowledge and resources to help others.

Students Making News

Senior Dan Debrah Wins Award

University of Pittsburgh bioengineering student Dan Debrah of Tulsa, Okla., received Honorable Mention in *USA Today's* 2004 All-USA College Academic Team program. Recipients were announced in the Feb. 12 issue of *USA Today* and were selected based on scholarship and leadership roles on and off campus.

Debrah will soon publish an original research paper in the professional journal *Endocrinology* on his research examining the effect of the ovarian hormone relaxin on systemic cardiovascular properties. He received an \$8,000 grant from the National Institutes of Health in 2003 to conduct this research in collaboration with Magee-Women's Research Institute.

"Relaxin is commonly associated with pregnancy, but we have found that administration of relaxin to nonpregnant rats associated with pregnancy, but we have found that administration of relaxin to nonpregnant rats induces a reduction in arterial stiffness and an increase in cardiac output," said Debrah. "These findings suggest possible therapeutic uses for relaxin to treat forms of cardiovascular diseases resulting from an increase in arterial stiffness."

For three years, Debrah has been working as a biomedical engineer for the University of Pittsburgh Medical Center's Clinical Artificial Heart Program, where he provides care for patients on such artificial heart-



assist devices as intra-aortic balloon pumps and ventricular-assist devices.

Debrah will earn the Bachelor of Science degree in bioengineering from the University of Pittsburgh in April, but already has begun graduate work in the laboratories of Sanjeev Shroff in the Department of Bioengineering and Kirk Conrad, professor in the Departments of Obstetrics, Gynecology, and Reproductive Science and of Cell Biology and

Physiology in the University of Pittsburgh School of Medicine.

"Dan possesses a good combination of native intellect, genuine desire to learn, capacity for hard work, and an ability to get things done," said Shroff, professor and Gerald E. McGinnis Chair in Pitt's Department of Bioengineering and professor in the School. of

Armanios Wins Goldwater

Daniel E. Armanios has been awarded a Barry M. Goldwater Scholarship. Armanios is a sophomore majoring in mechanical engineering and political science. He has either presented talks or published papers in four different fields, including physical chemistry, English, aerospace engineering, and mechanical/electrical engineering. Armanios is the recipient of two National Science Foundation internships, one at Cornell University and one at Washington State University. Active in the Model United Nations and the student chapter of the American Society of Mechanical Engineers at Pitt,

Armanios is in the process of founding the Model Arab League on campus, as well as a chapter of the American Institute of Aeronautics and Astronautics. He plans to pursue a doctoral degree specializing in mechanics of materials and hopes to become a university professor.

The Goldwater Scholarship was established in 1986 by Congress in honor of then-Senator Barry M. Goldwater of Arizona to encourage outstanding students to pursue careers in the fields of mathematics, the natural sciences, and engineering. The premier undergraduate award of its type in these fields, the



Goldwater Scholarship is awarded in either a student's sophomore or junior year. It covers tuition, room and board, fees, and books (up to a maximum of \$7,500 per year) for each student recipient's remaining period of study. Pitt undergrads have won a total of 30 Goldwater Scholarships.

Junior Awarded Grant

Congratulations to Civil and Environmental Engineering Junior Chantal Blake. Ms. Blake has received an undergraduate summer research grant in sustainable engineering from her department. She is studying how plants can be identified and classified as phytoremediating agents and their use in land and water reclamation.

Diversity in Action

Think Globally, Act Locally

The School of Engineering has taken steps toward educating freshmen engineers about the importance of understanding diversity within the context of the engineering industry. During the month of February, the Freshman Engineering Seminar participated in Diversity Month – with each of the four weeks addressing a variety of diversity topics with all activities and speakers engaged in the objective to heighten each student’s awareness of the importance in developing cultural competencies (global skills), as well as valuing difference within an engineer’s world of work.

According to an article in Today’s Engineer (<http://www.todaysengineer.org/June03/global.asp>), one “must develop personal, social, business, and cultural global

literacies” in order to be successful in the rising global environment. Engineers must be competent technically, as well as possess the skills necessary to function as a member of the global workforce. All seminar activities and presentations were designed to engage student awareness of cross-cultural communications. Understanding the workforce means also recognizing the norms and taboos of foreign cultures were also a topic of discussion.

The kick off seminar meeting introduced students to speakers who discussed the importance of effective communications with those of different cultures as well as cross-cultural competency skills they feel are important to develop during under-grad years. This year’s honored guests for the opening discussion included Dr. Sylvanus Wosu, assistant dean for diversity affairs at the

School of Engineering and Mr. John Coyne and Ms. Laura Randell of PPG Industries.

Additional seminar topics addressed the impact of cultural interactions and sharing lessons learned in interacting with those from diverse backgrounds. A panel of students and professionals from the various University Center for International Studies & Semester @ Sea met with the engineering freshmen and shared their thoughts on the impact of international travel and cross-cultural interactions had on their personal undergraduate experience. Gestures and body language interpretation was a popular discussion item by both the participants and the presenters because it was easy to understand and apply to everyday life.

The final week of the diversity series included an interactive two-hour diversity exploration

workshop facilitated by Dr. Sylvanus Wosu and Dr. Bob Burley.

The Accreditation Board of Engineering Technology already lists among requisite criteria (under item H) for all ABET programs “the broad education necessary to understand the impact of engineering solutions in a global & societal context”. The inclusion of diversity training for all freshmen engineers is the first step in many planned by the School of Engineering’s Office of Diversity to increase cross-cultural awareness within the culture of the School of Engineering. *Watch this column for exciting updates in such efforts!*



Bioengineering receives first Agbede Award

The Department of Bioengineering received the 2002-2003 Robert O. Agbede Award for Diversity in the School of Engineering. Dr. Harvey Borovetz, Chairman of Bioengineering, accepted the award on behalf of his department at the fall faculty meeting. Presenting the award, Dean Gerald Holder cited the department’s outstanding efforts to recruit African-American graduate students from the Meyerhoff Scholars Program at the University of Maryland Baltimore County and the department’s success in recruiting highly qualified female faculty.

The Department of Industrial Engineering received an honorable mention acknowledgment of Professor Andrew Schaefer’s commitment to working with teachers from Schenley High School to introduce students to Operations Research and Industrial Engineering.

The Robert O. Agbede award recognizes a faculty member and/or a department who has made what are determined to be the most significant contributions to enhance and support diversity in the School of Engineering. Robert O. Agbede is CEO of Advanced Technology Systems and an alumnus of the University of Pittsburgh School of Engineering.

Nominations are currently being solicited for the 2004-2005 Agbede award.

Pre-Phd Scholar Program to Increase Graduate Diversity

While diversity has become a buzz-word in both corporate and academic circles in the last decade, national figures show that fewer and fewer African-Americans are receiving Ph.D.'s in the sciences. Sylvanus Wosu, assistant dean for diversity affairs in the University of Pittsburgh School of Engineering is determined to change that.

This summer, Wosu instituted the Pre-Phd and PhD Scholar programs to increase the diversity of students pursuing PhD degrees by identifying highly gifted prospective PhD students early in their academic careers. By admitting promising students as "Pre-PhD Scholars" or "PhD Scholars," the "burnout factor" that tends to discourage students to pursue a PhD after undergraduate education is minimized.

This year, four Pre-PhD Scholars and one PhD Scholar entered the program, four from the University of Maryland Baltimore County and one from the Rochester Institute of Technology. All participants are working on research teams with faculty mentors throughout the summer, and will continue to engage in summer research until their matriculation at Pitt.

The Pre-PhD Scholar I program admits students who wish to transfer to Pitt at the end of the summer term prior to their senior year, or rising juniors intending to complete a BS at their own undergraduate institution. Students in this program pursue a six-year plan to: (1) complete university and

major BS requirements in three terms, (2) complete MS requirements in three terms, and (3) continue and complete the PhD program in three to four additional years.

Pre-PhD Scholar II program is open to selected students who wish to matriculate at Pitt after completing their BS degree at the host institution. These students follow a five-year plan to: (1) complete MS requirements in three terms, and (2) continue and complete the Ph.D. program in three to four additional years.

The PhD Scholar program is an option for incoming students who have completed the MS degree and wish to complete the Ph.D. program in three to four additional years.

The titles "Pre-PhD Scholar" and "PhD Scholar" carry with them conditional guarantees of admission to the PhD program at the school of Engineering. Admission will be granted contingent upon a student's continued academic success with a GPA of 3.5 or above and a minimum GRE as determined by the student's department, as well as satisfactory performance in the summer research program each summer preceding the student's matriculation as a PhD student at the University of Pittsburgh. All PhD Scholars and Pre-PhD Scholars who matriculate in a PhD program at the University of Pittsburgh School of Engineering will receive a complementary laptop during their first year as graduate students.

PPG Partnership Flourishes

Representatives from PPG met with faculty and staff from the School of Engineering this February to plan partnership activities for the upcoming year.

Since 2000, PPG has formed a close working relationship with staff and faculty as well as student organizations. PPG has also offered generous financial support of the PECAP program, including a \$20,000 gift this year, part of which will be used to fund a new scholarship/internship program.

The gift was presented at the partnership meeting by Mr. John P. Coyne, Manager of Corporate Recruiting for PPG. Accepting the gift on behalf of PECAP, Assistant Dean Sylvanus N. Wosu said, "We are extremely grateful for PPG's dedication to engineering education. The School of Engineering is fortunate to have the PPG partnership as a model that can be used to forge strategic alliances with other industrial leaders."

Graduate Diversity Fellowships Bring Students to Pitt

Through the efforts of the Engineering Office of Diversity, five new African-American graduate students were recruited in 2003. With the admission of these new students, African-American enrollment in the School's PhD programs is at a record 3.79%, compared to a national average of 2.0%. The number of African-American MS students remains stable at 2.34%. The number of Hispanic graduate students is also rising, with 1.46% (up from 1.1%) MS students and 1.26% (up from .45%) PhD students. Over 21% of MS students in the School of Engineering are female, as are 24.47% of PhD students. Assistant Dean for Diversity Sylvanus N. Wosu attributes his office's success to the availability of Graduate Diversity Fellowships and the cooperation of the departments. Any under-represented or female student interested in graduate school should contact Beth Buhot at (412) 624-8942 for more details about funding opportunities.

	AIM	AIW	AfA	HS-A	NA-A
1999-00	79.41%	20.58%	3.08%	1.85%	0
2000-01	82.82%	17.17%	2.52%	.50%	0
2001-02	76.21%	23.79%	2.42%	.49%	0
2002-03	76.47%	23.53%	2.71%	.45%	0
2003-04	75.53%	24.47%	3.79%	1.26%	0

PhD Enrollment