**STEP into Science at Medgar Evers College, Completing a Successful Strategic Plan**

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**ABSTRACT**

STEP into Science was designed to increase the number of students earning BS degrees in Biology and Environmental Science. The program targets to recruit new students and non-STEM students into Biology or Environmental Sciences; improve retention by providing academic, financial and mentoring support; foster integration of research and technology; and to better equip majors to be successful applicants to graduate/professional programs; and increase the number of students graduating with BS degrees in STEM. Since the inception of the program, STEM enrollment has more than doubled and the number of majors actively engaged in research has risen more than 90% with a concurrent increase in student research presentations at scientific conferences, and an 87% increase in the number of students receiving external research internships and travel awards to attend national conferences. STEM graduates have also increased and the program anticipates that these future STEP into Science graduates will continue on to Masters and Doctoral programs in STEM and ultimately enter rewarding careers in the science enterprise.

**Over the next decade**

- Demanded and job opportunities in science and engineering (S&E) are expected to grow.
- Many S&E "baby-boomers" are retiring.
- Will America be able to maintain a S&E workforce that keeps up with a more globally technologically and scientifically advancing society?
- Will America be able to attract enough young people into Science, Technology, Engineering and Mathematics (STEM)?
- Will the future STEM workforce reflect the more racially and ethnically diverse U.S. population projected by midcentury?

The U.S. Census Bureau projects that by mid-century the nation will be more racially and ethnically diverse, as well as much older.

**STEP into Science Strategic Improvement Plan and Program Goals**

1. agressively recruit students from non-STEM areas pamphlets, fliers, posters, website peer recruiters coordinate with Freshman Year program and local high schools
2. improve retention and the number of students graduating with B.S. degree in Biology or Environmental Science who enter careers in this science enterprise
3. promote and establish an Institutional Learning Outcomes program
4. display the steps which need to be taken to make students aware of opportunities promote external summer research internships
5. monitor and assess short-term and long-term program effectiveness, maintain system to document and disseminate findings track student progress through the program and beyond establish andInternal advisory committee establish an external advisory committee

**Student Enrollment by Gender**

**Student Enrollment by Age**

**Student Enrollment by Place of Birth**

**Student Enrollment by Ethnicity**

**Summary**

- The Occupational Outlook Handbook of the U.S. Bureau of Labor Statistics (2008-09) projects that demand for life scientists and engineers will grow faster than the national average for all occupations. Engineers and life scientists will grow at 41% and 32%, respectively, over the 2006-2016 decade. Greater growth is expected for environmental scientists, environmental engineers, and medical and engineering swagger (21% and 25%, respectively).

- Implementing successful recruitment strategies is a major barrier in attracting students into STEM majors. Often it's a long, complex, and financially intensive process to recruit the top students into STEM programs because their scores indicate they are ill-prepared for the rigors of college mathematics and science courses. However, students have found that African American and Hispanic college students with high grade point averages and SAT scores above 600 still may not pursue STEM majors for reasons including poor teaching in STEM courses, lack of encouragement from teachers or parents and sometimes fear of their own inability to be successful in STEM majors.

- Most recruitment efforts to attract URM students into science majors involves impersonal forms of advertising explaining on campus programs or use of adult recruiters that may or may not represent valid role models or be properly prepared for rewarding careers in the science and technology enterprise.

- The STEP into Science Peer Recruiter Initiative has been a popular and engaging strategy for both recruiters and perspective majors. Upper level science majors are the best science role models to recruit the population being targeted. They can give personal insight on how they handled degree requirements and hopefully entice students by relating their research and other enrichment experiences as well as future goals. Recruiters benefit as well by gaining pride and self-confidence, while conveying their science accomplishments and experiences to their peers.

- Another stumbling block is how to improve student retention. National statistics show that in 1996, 33% of Asian American and 43% of Asian freshmen entered STEM majors; however fewer than 50% completed B.S. degrees within 5 years, with URM dropping out at higher rates than other groups.

- The inability of high school teachers to properly prepare students for the rigors of college science in an age of computer It is estimated that 29% of high school math teachers and 23% of high school science teachers never majored or even minor in these subjects. The percentages are even higher for inner city school systems like NYC.

- A major factor in student success and retention is involvement with faculty. When students have frequent friendly interactions with faculty, they gain a greater sense of confidence, autonomy, independence, purpose and integrity are often enhanced. Other reports have shown increased informal student-faculty interaction results in satisfaction with the overall quality of education and persistence in obtaining the degree.

- URM are more likely to be in 2-year than 4-year institutions, 16% versus 31%, respectively. Most recruitment efforts to attract URM students into science majors involves impersonal forms of advertising explaining on campus programs. URM are more likely to be underrepresented at internal and external conferences.

- In 1997, 54% of black scientists in the U.S. labor force had a B.S. as their highest degree compared with 37% of all scientists and the percentage of all doctoral scientists and engineers in the U.S. of African descent was only 3%. While some progress has occurred over the last decade, recent data indicate that a number of doctoral scientists and engineers in the U.S. African descent had barely risen, to just over 4%.

- A quote from Reaching the Top, the 1997 report of the National Task Force on Minority High Achievement, states: "Until many more URM students are properly prepared for rewarding careers in the science and technology enterprise, as well as our society's institutions completely, especially at leadership levels."

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**Figure 1**

Percent Minority of the U.S. Population by Selected Age Groups 2010 to 2050

**Figure 2**

STEM Enrollment

**Figure 3**

MEC STEM Degrees Awarded

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