At the Crossroads of Sustainability: 
HBCU Physics Departments

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Vision for Undergraduate HBCU Physics Programs*

Vibrant undergraduate programs that are sufficiently staffed and garnering resources to significantly increase the number of graduates who are well-prepared to pursue advanced studies in physics or careers outside of traditional physics made possible through curriculum modernization to reflect skills required by the 21st century workforce.

* Draft to be modified by the community of HBCU physics department chairs
Primary Focus Areas

Recruitment

Retention

Finance
Institutional Needs

- Financial Viability
- Regional Accreditation
- Infrastructure (i.e., buildings, physical plant)
- Resources (i.e., library, technology, personnel)
- University Enrollment
Academic Affairs Viewpoint contd...

School/College/Division/Department Needs

- College/School Accreditations
- Discipline Specific Accreditations
- Graduate and Professional Programs

**Translation**

Forget about significant resources coming to the physics department from the provost.
Recruitment

- Students are vital for a department’s existence.
- New physics majors must be constantly recruited. As such, effective recruitment strategies should be developed for your program.
- A healthy number of undergraduate physics majors is 20 or greater.
Annual Degree Production

- The program must produce enough graduates to satisfy the institution’s and/or governing body’s requirement for productivity.

- Although this number varies from institution to institution, it is generally not good for a program to produce between 0 – 1 physics degrees annually.

- The quality of graduates is very important. Are graduates matriculating into graduate programs or entering into careers that utilize their technical backgrounds?

- Retention should not be neglected. Measures should be taken to assist under-prepared students.
Fiscal Resources

The administration fully expects for all degree programs to attract external funding.

Programs without external funding draw unwanted scrutiny from administration.

Healthy undergraduate-only physics programs should deliver >$50K/FTE per year.
Faculty

• Departmental faculty may be comprised of permanent tenure-track faculty, full-time temporary faculty, and part-time or adjunct faculty members.

• An adequate number of faculty are needed to deliver quality instruction for well-prepared graduates.

• A minimum of 3 FTE is recommended to maintain quality instruction.
Curriculum

- Curriculum modernization is an effective way to attract new majors.

- The physics curriculum should be updated periodically (i.e., once every seven years).

- Alternate career path concentrations should be incorporated to provide more choices for potential majors. Only about 1 in 5 physics B.S. degree recipients pursue advanced degrees in physics.
Research

- At undergraduate-only degree programs, 1-2 peer-reviewed articles per year per tenure-track faculty member should be expected.
- Undergraduate students should be engaged in research opportunities both within their department and outside of their home institution.
- Faculty can utilize grants to support post-doctoral staff to further their research agendas.
- Partnering with larger institutions, national labs, state and federal agencies and corporate sponsors should be pursued.
Student Support

- Most minority students at HBCUs use financial support to pay their educational cost.

- Offering **financial support** directly from the department in the form of scholarships, stipends or awards is a very effective way to attract new majors.

- Having departmental **academic support** available is also extremely helpful with retention.
Layout of Workshop

• Report from 2011 Workshop in Hampton, VA

• Key Topics for Major Discussions (45 mins. each)

1. Recruitment

2. Retention

3. Finance
Thank You!

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