



SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

Future Faces of Physics Award Proposal

Project Proposal Title	Physics in the Phlesh
Name of School	Morehouse College
SPS Chapter Number	SPS Chapter # 4523
Total Amount Requested	\$300.00

Abstract

The Morehouse Chapter of SPS requests support for a STEM peer mentoring project called Physics in the Phlesh. The purpose of the Physics in the Phlesh mentoring program will be to provide (1) individualized, peer-to-peer mentoring, (2) retention and recruitment of students who may be considering a career in science, especially with an interest in physics or engineering, and (3) community outreach and service exposure to 1st and 2nd year students at Morehouse College.

Proposal Statement

Overview of Proposed Project/Activity/Event

As a 2-year member of SPS, I learned that it is imperative to give back and to engage the younger students in the Morehouse Physics Department. For introductory physics and math courses, professors feel it is imperative to introduce the rigor and discipline required for this field. Under this pressure, many younger physics students stumble or drop out of physics after the second introductory physics course which is Electricity & Magnetism. To combat this, we aim to give the younger students a peer-led support system. Our mentoring program will aim to:

1. Improve grades of beginning physics students
2. Allow physics department to retain more students
3. Inform and get new students involved in the SPS

The mentors will:

1. Explain and inform students of department and course expectations
2. Offer informal academic advisement
3. Offer intern and scholarship information
4. Provide a support system and an introduction to the Morehouse SPS
5. Provide a monthly to bimonthly teleconference (Skype) with different SPS/Morehouse Physics Department Alum

How Proposed Activity Promotes Physics Across Cultures

By immediately engaging our freshmen students through the mentor program, participation in SPS has consistently risen. This has the potential to be largely beneficial to our community outreach efforts.

The Morehouse SPS Chapter currently works in conjunction with a local youth development organization, the DUKES Foundation, on a consistent basis. The DUKES Foundation is an Atlanta 501C3 mentoring program which provides local at-risk adolescent males with strong guidance and instruction on the rules of etiquette and the secrets to success within the professional world. For the past few years, the Morehouse SPS Chapter has been consistently involved with the DUKES Foundation through regular Saturday-morning math/science tutoring sessions in which students of the DUKES program receive aid on their school work and insight into completing high school and making the transition from secondary school to college. Our officers and the founder of the DUKES Foundation, Mr. Horace Dukes, have decided this year that we would like to increase the involvement of Morehouse science students in the lives of the young men of the DUKES Foundation beyond the twice-per-month tutoring sessions we already have in place.

We have also discussed conducting a number of demonstrations at local high schools and junior high schools to draw the interests of students who are curious about ways in which physics may be “fun”. This year we have planned a demo at Scott Elementary School in Atlanta on October 21, 2013. Potential demonstrations which our traveling “physics circus” would display would include (but most definitely not be limited to): a hologram,

a rubens tube, a wave pendulum, a rail gun, a homopolar motor, the properties of non-Newtonian fluids, liquid nitrogen and low Reynolds number fluids, and others.

Plan for Carrying Out Proposed Project/Activity/Event

The Physics in the Phlesh mentoring program was authored by SPS president Hakeem Jones. The SPS board has been involved during all phases from planning to implementation to the monitoring process.

The SPS president, Hakeem Jones, went to all mechanics, E&M, and freshmen engineering courses to inform the students of the program. SPS public relations director, Theirry Attis, and secretary, Ron Hobson, made flyers and sent emails to all declared physics majors.

We have 12 qualified mentors currently in our program. To be a mentor one has to have a 2.75 GPA in 12 hours or more of physics courses. To date about 30 students in our department signed up for mentoring.

Project/Activity/Event Timeline

April 2013- Draft of proposal

Aug 2013- Overview with advisor (Dr. A. Bak)

Sept 1, 2013- 2 min recruitment speech to to all intro Physics and engineering classes

Sept 8, 2013- Selection of mentors

Sept 16, 2013- Mentor mentee pairing

October 23, 2013- Scott Elementary School Demo

November 18, 2013- End of Semester Social

December 16, 2013- Westlake HS Demo

Activity Evaluation Plan

A primary key to active SPS community outreach and physics promotion is involvement and moral in our department. Through our mentor program active SPS involvement has rose, moral has rose, and hopefully grades and retention among physics majors will rise. A goal of our program and department is to graduate 45 physics and applied physics majors annually. Additionally, we are aiming to go 2 schools a semester for physics demos, and to be continually involved with volunteer tutoring efforts.

Budget Justification

Any funds would be greatly beneficial to our community and mentoring efforts. For our demos we made and used a Rubens' tube, set up non newtonious fluids, electornic experiments, and optics examples. We also did several demonstrations of liquid nitrogen (donated by Morehouse Physics department) properties. So far our Rubens' tube has been our largest cost, but all of our experiments have associated costs (see spreadsheet). We place much emphasis on our demos, because they allow our students to get involved with the community, reassure skills learned in the classroom with practical experience, and to get the natural confidence booster that comes from teaching someone else a subject. Our chapter would use any funds for materials and transportation to our physics demos, and food (pizza) and snacks at our tutoring sessions and alumni mentoring meetings.

Details for demo materials are on excel spreadsheet.



SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

Future Faces of Physics Award: Budget Proposal

Name of School: Morehouse
Project Proposal Title: Physics of the Phlesh
Name of Primary Student Contact: Hakeem Jones

Item Number	Item Description	Cost per Item	Number of items	Total Cost
1	L.E.D. kit	10.00	2	20.00
2	batteries (AA, 6-volts)	18.00	1	18.00
3	corn syrup	3.00	4	12.00
4	propane tank refill	20.00	2	40.00
5	potatoes	4.00	4	16.00
6	corn starch	5.00	2	10.00
7	food color	4.00	1	4.00
8	lasers (pointers)	15.00	2	30.00
9	gas regulator (for rubens tube)	40.00	1	40.00
10	electronic kits (snap breadboards)	15.00	2	30.00
11	transportation (fuel for 2 cars/van)	20.00	4	80.00
12				
13				
14				
15				
16				
17				-
18				-
19				-
20				-
Total Proposed Cost				300.00

Please note that the total proposed cost should be no more than \$300.00.

Liquid nitrogen (20-L dewars) will be donated (estimate cost of \$150) by the Physics Dept at Morehouse.