The Faculty  
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April 20, 2010  

Dr. William Bischoff  
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Dear Bill,  

In a memorandum dated March 23, 2010, Provost Gary Miller has recommended to discontinue the BA/BS in Physics. You have informed us of this recommendation on April 13, 2010, by email and during a physics faculty meeting. In another email sent later that day you informed the LAS faculty and in accordance with Policies and Procedures - solicited “written statements or arguments or rebuttal to the proposal” by April 27, 2010. With this letter we, the Faculty of the Department of Physics, provide our response and comments.  

We will first summarize the importance of the discipline of physics within a university in general and at WSU in particular, then address the issue of a low number of majors in the physics program, and finally discuss options on how to proceed. Discontinuing the physics degree is not a viable option.  

As one of the natural sciences physics provides the foundation for many areas of study. The engineering disciplines apply basic laws of physics to their respective areas. Research and teaching in Chemistry rely on quantum mechanics and biological research often applies principles of physics to understand biological systems in new depth. The intersection of physics and medical research has resulted in medical imaging techniques (fMRI, etc.) and other advances. A comprehensive interdisciplinary approach to almost any problem will involve physics because physics is the science that describes nature at the most fundamental level.  

The relevance of physics is not just academic. Many physicists are employed in industry and government. Regular studies by the American Institute of Physics (AIP) and the American Physical Society (APS) show that even in times of rising general unemployment the rate of unemployed physics graduates remains low. Past graduates of the Physics Department at WSU are working in the
Wichita aviation industry, Stanford University, NASA, and many other places. In recognition of the importance of physics for the aviation industry Boeing is supporting WSU physics students with two $1500 scholarships per year.

Wichita State University has a very competitive program in Aerospace Engineering. The National Institute for Aviation Research (NIAR) and the strong industry base of large and small aircraft manufacturers in Wichita enable AE at WSU to rank among the top in the nation. However, some of the universities with competing AE programs can attract the best students because they also offer very high quality physics programs and many of the best students are interested in pursuing double majors. The engineering disciplines at Wichita State University will likely be unable attract the best students or the best faculty if the University discontinues the physics program.

Although physics is important in academia and industry and beneficial to the community, the number of physics graduates is low at most universities. For example Kansas State University currently has 33 physics majors (Freshman to Senior) and a graduating 5 year average of 5.5 degrees per year. Many students chose an engineering course of study over physics because physics is difficult. However, the low numbers of recent years do not reflect the potential of the physics department at WSU.

A new Chair-person was brought into the physics department less than three years ago. Several changes in recruiting are resulting in an increase in the number of majors as well as the number of degrees conferred. Of course the number of juniors and seniors can not be expected to rise within only two years as all newly recruited students are freshmen and sophomores. Similarly the five year graduation average cannot be seen as a fair indicator of improvements in the last two years. Data attached here shows that the department is actually well on the way towards meeting standards within two to three years. We expect eight graduations this year and have 36 physics majors this semester (Freshman to Senior, 20th day), exceeding KSU numbers. Credit hours taught by the physics department have increased steadily over the last years to 2958 hours in Spring 2010 (see data attached).

We plan to continue to increase enrollment and teaching quality, following the plan formed by the external review. Some of our majors are double majors in engineering. More engineering students have expressed interest in double majoring. In order to make it easier for engineering students to do so, it would be useful to waive the LAS College course requirement for those students who satisfy College of Engineering requirements. Currently, with the LAS College course requirements the total additional load is 1.5 years for an engineering student to double major. If the LAS College course requirements are waived, the engineering students could double major by taking just the physics courses, a load that adds only one year.

If waiving the LAS College course requirements for engineering/physics double majors is not possible, a move of the physics department into the College of
Engineering could also be considered. There are many examples of successful physics departments in engineering colleges throughout the nation, among them the departments at Cornell University, the University of Illinois at Urbana-Champaign.

The main advantage of moving into the college of engineering is that students would be able to double major in physics and engineering with clearly stated, simpler college requirements. Engineering physics will likely be an attractive option for many students in Wichita and the department might in the long term attract more students than a physics department in LAS could do. A physics department in the college of engineering could become a center of excellence and a real asset to WSU. However, a physics department in the college of engineering is only useful to engineering departments and the university if we maintain departmental independence, continue to offer the physics degree, and retain the ability to conduct research in any area of physics, basic or applied.

In summary, the path towards a better university cannot include removal of the physics degree. A sustainable healthy physics program to the benefit of the entire university is possible and within reach.

Yours sincerely,

Nickolas Solomey, Chair and Professor of Physics
Elizabeth Behrman, Professor of Physics
Jason Ferguson, Assoc. Professor of Physics
Hussein Hamdeh, Professor of Physics
James Ho, Distinguished Professor of Physics
Holger Meyer, Asst. Professor of Physics
Sayed Taher, Assoc. Professor of Physics