PhysTEC Update: Spring 2013

As we conclude our first year as a PhysTEC funded site, we are pleased to announce that we have made many strides to increase the number of Physics teachers we produce here at ASU. Since our funding began in August 2012, we have implemented a new Learning Assistant Program in two PHY 121 classes. We have also teamed up with the Mary Lou Fulton Teachers College to create a new Physics degree that has a concentration in Secondary Education. Our team looks forward to making many more changes that will highlight ASU as a University that emphasizes the importance of STEM education.

New Teacher in Residence Hired

A vital part of the success of the PhysTEC program is introducing a previous high school Physics teacher into our staff. Kelli Gamez-Warble has been hired as the team’s Teacher in Residence. Kelli has been attending and teaching Physics Modeling Workshops at ASU for many years, which is why she was the perfect candidate for the job. She will help the program’s efforts by providing a voice and perspective of Secondary Education Physics teachers. Kelli plays an important role in this project because she will be able to guide and mentor the students that have an interest in teaching Physics at the high school level.

Learning Assistant Program

In an effort to encourage physics students to go into teaching once they graduate, we have employed a new Learning Assistant Program. Highly qualified undergraduate Physics students have been selected to participate in this program. Learning Assistants have teamed up with Professor John Shumway and Professor Allan Friesen in their PHY 121 classes. LAs are present in these designated lectures and actively engage with the students to ensure they have grasped the materials they learned that day. These two classes have changed their dynamics, and now focus on in class activity, so the students receive hands on experience instead of relying purely on a lecture to learn the material. In each class, the students receive problem sets to complete after each new topic has been introduced. During this time, the LAs walk around the classroom and assist students with the problem sets. Learning Assistants also run multiple recitation sections for the PHY 121 classes. They meet with our Teacher in Residence each week to create lesson plans for their recitation sections.

The inclusion of learning assistants into these classes has been extremely beneficial. We are noticing that attendance in these classes is higher and the students’ grades have been improving. The learning assistant program is serving as a tool for both the LAs and the students. The LAs are gaining valuable teaching experience while the students are benefiting from the extra hands on help in lectures and recitations. We hope that the experience the LAs gain from this program will encourage them to pursue a career in teaching Physics at the high school level.
New Degree: B.S. (Physics) – Concentration in Secondary Education

The Physics Department has teamed up with the Mary Lou Fulton Teachers College to increase the number of Secondary Education Physics teachers we produce each year. A new Physics degree has been created that places an emphasis on Secondary Education. This new degree will be available to students at the start of the 2013 Fall Semester.

The purpose of this degree is to further the main goal of PhysTEC, which is to improve and promote the education of future physics teachers. There is a critical shortage of qualified physics teachers throughout the country. This degree will provide an efficient and attractive path to a career in teaching high school physics. Through this degree, students will take a mixture of math/science classes as well as classes offered through the Teachers College that will prepare them to go into a career in education once they have graduated.

Students pursuing this new degree opportunity are encouraged to apply for a Learning Assistant position as they progress through the degree requirements. This is just one of the ways students can gain valuable teaching experience through this new degree concentration. This degree is unique in that students who graduate from this program will be fully prepared to take on a graduate degree in Physics and will also be recommended by the Mary Lou Fulton Teachers College for certification by the State of Arizona.

PhysTEC Site Visit Overview

On February 27, 2103, members of the national PhysTEC committee came to visit our site at ASU. The committee met with each member of our team and got the chance to speak with a handful of LAs, PHY 121 professors, Physics chair at ASU Bob Nemanich, and the new science dean Ferran Garcia-Pichel.

The members that came to visit were very impressed with the strides we have taken in our first year of funding. They said that our new degree opportunity seemed to be “an attractive pathway for career changers, which could substantially boost numbers.” The flexible dynamic of this degree concentration will allow students to use their undergraduate education to decide on a graduate degree or a career in teaching physics education. They also thought that our PHY 121 class reform into an LA system will be a major asset to our site.

As a whole, it seems like our site is on the right track to becoming a top leader in the country for producing qualified physics teachers.

milestones in our first year of funding:

- Teacher in Residence Hired
- LA Program Implemented in PHY 121
- FCI/BEMA Pre/Post Tests Distributed and Analyzed
- New Physics Degree With Concentration in Secondary Education Created
- Student Success Center Opened
- SCALE-UP Renovation Underway
- Physics Department’s First Red Carpet Event Held
- Our MNS Degree Program Accepted by the Western Region Graduate Program

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