

Final Report  
for the  
Professional Development Grant Award  
of  
Dr. Amber Sierra (Harrington), Assistant Professor of Physics  
to attend the  
November 2015 AAPT Physics and Astronomy Faculty Workshop

### **B. Restatement of professional enhancement opportunity**

In the Fall of 2015, I requested funds to attend the American Association of Physics Teachers' workshop for New Physics and Astronomy Faculty. The workshop was held at the American Center for Physics in College Park, Maryland, November 19-22, 2015. As a new faculty member in the Physical Sciences Department, this workshop helped inform me of the most effective teaching techniques in the college physics classroom. This particular workshop was very beneficial to me, because in addition to teaching physics and physical science courses, I am responsible for astronomy instruction in the department.

### **C. Brief review of the professional enhancement opportunity**

At the workshop, leading figures in physics and astronomy education taught topics including:

- the difficulties that students encounter with physics concepts
- how-to strategies for teaching problem solving
- ideas for interactive teaching and peer instruction
- the proper uses of technology in lecture and lab settings
- issues dealing with undergraduate enrollment, curricula, and retention
- case studies on how to teach inclusively so that all students have equal opportunities to succeed

The workshop also offered:

- A focus on the introductory course along with lessons that apply to advanced undergraduate and *graduate* courses
- Presentations surrounding effective teaching ideas that can be reproduced with minimum time and effort

- Exploration of new developments in physics and astronomy curriculum and pedagogy
- Materials provided for immediate application in the classroom
- Facilitated discussions between new faculty, guided by a resource person. Popular topics include: promotion and tenure issues, dual-career couples, time management, and balancing professional and personal activities
- Opportunities to meet with program officers from the National Science Foundation's research and education directorates

#### **D. Summary of findings, outcome, or experiences had**

The major objective of attending this conference for me was to become a better Assistant Professor in the Physical Sciences Department of Arkansas Tech University. The information and resources that I gathered from the workshop have had a positive influence on me and my teaching. Since attending the workshop I have completely changed my astronomy course. The course is now much more student-oriented. Most of the class time is devoted to them thinking and working together through research-based astronomy activities, while I guide them. I also learned of several diagnostic tests that I can use to compare what my students learn in my course to other students in similar courses at different universities.

#### **E. Conclusions and Recommendations**

This workshop was highly beneficial to me as a teacher and a professional. I recommend that all new physics faculty attend this workshop.

**Appendix: Documentation that the enhancement event occurred**

My name is on page 3 and a group photo on page 8.

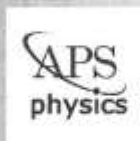
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NEW PHYSICS AND  
ASTRONOMY FACULTY  
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