ROSS TUCKER
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Education

2016 ARIZONA STATE UNIVERSITY
Doctor of Philosophy in Physics, May 2016

2012 ARIZONA STATE UNIVERSITY
Masters in Physics, Apr 2012

2005 ARIZONA STATE UNIVERSITY
Bachelor of Science in Physics, Dec 2005

Experience

2016– Instructor Arizona State University, West Campus Glendale, Arizona

2014–2016 Adjunct Faculty Mesa Community College Mesa, Arizona

2013–2016 Graduate Research Associate Arizona State University Tempe, Arizona

2011–2013 Graduate Research Assistant Arizona State University Tempe, Arizona

2010–2011 Teaching Assistant Arizona State University Tempe, Arizona

2006–2009 IT Manager/Staff Accountant SWC Business Enterprises Scottsdale, Arizona

2005,2006 Instructor Arizona Science Center Phoenix, Arizona

2004 Undergraduate Research Assistant Arizona State University Tempe, Arizona

2001–2002 Intern/Education Specialist Spectrum Astro, Inc Gilbert, Arizona

Other Teaching and Mentoring Experience

2015 Designed and taught a class on introductory Python programming and Linux

2012,2014 Participated in three sessions of AIP's Adopt-a-Physicist Program, mentoring high school students who are interested in learning about physics.

2000-2016 Designed and taught seven classes on the content necessary to obtain an amateur radio license in the US. (2000, 2001, 2010, 2012, 2014, 2015, 2016). This included leading a group of high school students to make contact with the International Space Station via amateur radio within five months (2000, 2001) and leading a group of college students to build their own radios from components (2015).

2003-2005 Developed and ran a program to mentor junior high and high school students at the Arizona Science Center.

2001-2004 Gave presentations at the Arizona Science Center on space exploration (as a NASA Solar System Ambassador).

1996-1998 Presentated to classes and other groups about Mars exploration.

Amplified Résumé

MESA COMMUNITY COLLEGE

As a member of the adjunct faculty, developed lectures, led labs, and wrote exams for the following courses:

- PHY111: General Physics I (two semesters)
- PHY131: University Physics II (one semester)
- PHY121: University Physics I (one semester)
- PHY112: General Physics II (one semester)

Also, directed honors projects for 9 students. Met weekly for 2-3 hours and investigated topics beyond the class curriculum (three semesters).

ARIZONA STATE UNIVERSITY

As an instructor, developed lectures, led labs, and wrote exams for the following courses:

Fall 2016:

- PHY101: Introduction to Physics (lecture and two lab sections)
- PHY113: Lab for General Physics I (three sections)

Spring 2017:

- PHY101: Introduction to Physics (lecture and lab)
- PHY114: Lab for General Physics II (two sections)
- PHY121: University Physics II (Tempe campus, SCALE-UP pedagogy)

2010–2011: As a Graduate Teaching Assistant, developed mini-lectures, led recitations and review sessions, and graded exams for the following courses:

- PHY111: General Physics I (one semester)
- PHY121: University Physics I (one semester)
- PHY131: University Physics II (one semester)

ARIZONA SCIENCE CENTER

- Developed and taught successful series of summer courses in computing and programming for high school and college students. Syllabus included hardware, assembling a desktop computer, linux installation and use, the emacs editor, and programming simple text-based games in perl.

GRADUATE STUDIES AND RESEARCH

- Data analysis for PhD dissertation - data produced through an experiment performed at Thomas Jefferson National Accelerator Facility (Jefferson Lab) in Newport News, Virginia.
- Developed nearly 3000 lines of C++ and Python to extract polarization observables.

- Developed a novel technique for extracting information from signals with high background level.
- Developed a utility to download comparative measurements from world database.
- Authored an internally-published study for the benefit of my collaborators.

In addition to dissertation research, assisted several colleagues in my collaboration:

- Developed software for the testing and calibration of a silicon detector used in the GlueX detector. This entailed developing and maintaining approximately 1200 lines of C++ over the course of 18 months, used to process data from automated testing of detector elements and dynamically generate a web page with graphs of the resulting output. As the needs of the engineering team changed, I maintained my code and added features.
- Tested and installed photomultiplier tubes, using a radioactive source to measure the response for each tube in a large assembly, necessitating the development of a novel test harness.
- Assisted in every phase of the design and construction of a high-performance active filter circuit.

For a deeper understanding of nuclear and particle physics, attended two intensive summer courses:

- Hampton University Graduate Studies program in Newport News, Virginia in 2012 and
- National Nuclear Physics Summer School at Stony Brook University in 2013.

UNDERGRADUATE RESEARCH

- Wrote software to control laboratory computer cluster. This software allowed users to submit jobs and which farmed jobs out to free nodes. Developing this system involved compiling a custom linux kernel.

SPECTRUM ASTRO, INC

- Performed market research on competitors and created 3D model of a satellite from blueprints.
- Developed and implemented test bench for a novel battery technology
- Developed and delivered a presentation on Solar System Exploration for 18th National Space Symposium in Colorado Springs, CO. Presentation was also delivered to local schools as a service to the community.

Presentations and Publications

2016 "Preliminary Results of T and F Asymmetries for η Photoproduction from the Proton", presentation to BARYON 2016.

2015 "Preliminary Results of T and F Asymmetries for η Photoproduction from the Proton", presentation to the American Physical Society Four Corners Section.

2014 "Analysis of g9b target offset angle", Jefferson Lab internal technical document CLAS NOTE 2014-001.

2013 "Preliminary Results of T and F Asymmetries for η Photoproduction from the Proton", presentation to the 9th International Workshop on the Physics of Excited Nucleons (NSTAR 2013). Proceedings published in Int.J.Mod.Phys.Conf.Ser. 26 (2014) 1450078.

2012 "Preliminary Results of T Asymmetry for π^0 and π^+ Photoproduction from the Proton", presentation to the American Physical Society Division of Nuclear Physics.