

Future Faces of Physics Award Proposal

Project Proposal Title	WISE STEM Camp for Girls
Name of School	Abilene Christian University
SPS Chapter Number	Z13-0006
Total Amount Requested	\$300.00

Abstract

Abilene Christian University's proposed event is a STEM demo show for middle-school aged girls, presented by the women of our chapter. The participants would be divided into groups, each with an SPS mentor, and travel to several hands-on and demo stations in order to foster creativity in future female scientists.

Proposal Statement

Overview of Proposed Project/Activity/Event

Our event, The Women in Science and Engineering (WISE) Camp, as stated in the abstract, strives to foster creativity in future female STEM students. We will have several STEM related stations that will allow young girls to experience the fun of science while making friends. Another overall goal of the project is to allow for the women of ACU to get to work together on the planning of the event, and build closer friendships.

The event will take place on a Saturday morning. The girls would arrive at one of the physics labs, and the travel with their assigned group and leader to each of the science demos. The goal of the stations would be to have a mix of hands-on activities and more learning-based demonstrations. After the demos, the group would all eat lunch together at the school's cafeteria.

Ideas for stations include (but are not limited to):

- Spaghetti bridge construction contest
- Giant bubbles
- Bed of nails
- Liquid nitrogen flowers demo
- 3D printing demo
- Diffraction grating glasses spectroscopy demo
- Hydrogen bubbles

Most of the supplies for the demos can be borrowed from the Physics Roadshow equipment, but most of the hands-on materials must be purchased.

Attendance Goals: 30-50 girls, 10-15 student volunteers, 3-5 faculty volunteers

This idea came from two separate events that the ACU engineering and physics department has been a part of in the past. The first is a Physics Roadshow that ACU students help with each year specifically designed for elementary school children. The next is a STEM camp for middle school girls put on by volunteers in the local school district. We plan to combine and improve on these ideas by making the activities more hands-on than demonstration based.

How Proposed Activity Promotes Physics Across Cultures

This project will be in conjunction with the Women in Science and Engineering (WISE) branch of our local SPS chapter, which strives to promote community and fellowship for the women in our department. This project will help younger girls, who may be discouraged about their future in science, to meet older girls (the SPS members), and other girls their own age interested in science, all while having fun! Our event will help

encourage and foster creative thinking in the next generation of female scientists. It will also help bring together the women from ACU's own department, and help build relationships between female students.

Plan for Carrying Out Proposed Project/Activity/Event

- Personnel -
Student Leader: Megan Cromis will be in charge of coordinating the event and making sure that everything happens in a timely manner.
Sponsors: Professors Mike Daugherty and Darby Hewitt will help oversee the project.
- Marketing – We will send flyers home with the middle school students and have bulletin posted in the science classes advertising the event.
- SPS member participation – Depending on how many girls sign up to come, we will have 10-15 SPS and WISE members participating in several capacities.
Group leaders: 3-5 students will be group leaders who will be responsible for their group of students, and travel with them to each of the stations.
Demo leaders: The rest of the volunteers would be responsible for manning and clean up associated with one of the stations.
- Expertise – There are several members who have volunteered at events similar to this, and many have even run the demonstrations themselves at these events.

Project/Activity/Event Timeline

2014: Appoint further student (and teacher) leaders and split up tasks between them

January and February: Reserve the Lab space and Finalize Lunch plans
Contact Middle Schools for Advertisement Purposes

Week of March 1: Finalize Student and Teacher Volunteers (and assign tasks)

Week of March 30: Finalize attendance

Saturday April 4: WISE Event!

Activity Evaluation Plan

In order to evaluate the success of our event, we will keep detailed records of attendance, administer a survey to the participants as well as the group leaders to get multiple opinions on the overall success of the project.

The short survey will ask the students about their group leader, as well as what activities they liked the most/least. This way, we can keep the favorite activities for the next event, and replace the ones that the students disliked.

Budget Justification

The diffraction grating glasses would be a great way to allow the girls to take home a bit of the science they would experience during the day.

The spectroscopy supplies will allow us to add another station that we would not be able to have otherwise.

The crafting supplies would allow us to have several more hands-on stations, which would increase the students' involvement.

Providing lunch would allow the girls to connect with each other, and meet with the older student volunteers. It is very important that middle school girls realize that it IS possible to be a successful women in a math-science field.

*Any expenses not covered by SPS would come from our local chapter's budget, and we would borrow most of demo equipment from them as well.