Otterbein University UAN

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Program Description

I. Program Overview

Otterbein University’s UAN chapter participated in Starry Night this year, which is an interest festival to promote interdisciplinary learning in the fields of Science, Technology, Engineering, Art, and Mathematics (STEAM) in the Westerville community. We would like to continue our partnership with the Westerville Partners for Education by participating in this event again next year, and we would also like to expand our exhibit. This festival had nearly 60 exhibitors and 2000 visitors from the community this year, with entire families participating in the learning opportunities at the event. This year we used models to show the kids the basics of protein structure and let them fold their own protein structures. We also partially assembled a DNA model and then let the kids figure out how base pairing works to complete it. Finally, we had them test a hypothesis about if M&M shells were made of more than one color using paper chromatography.

Next year we would like to provide smaller protein and DNA models that the children can make themselves with craft supplies and keep, in addition to our larger models. This would provide an even more active learning experience for the children and give them something tangible to go and show friends and family. We also would like to develop activities or literature that can be distributed to participants of our exhibit that teach them about how normal and abnormal folding of proteins affect health, and have a similar activity to teach them about DNA and what can happen when mutations occur. Our goal is to provide hands-on learning experiences for the entire family by providing activities that can be beneficial for preschoolers through parents.

In addition to supplies for the demonstrations and exhibit itself, we would like to purchase t-shirts, signs, and displays that identify ourselves and give information about the chapter and Otterbein’s BMB program. These items will draw more people to our exhibit and provide an additional way of disseminating information about Biochemistry and Molecular Biology. Another benefit of these items is that they can be used for other outreach events we will participate in during the year. We plan on having a similar exhibit at a street festival that brings Otterbein and the local community together on the fourth Friday of each month; our exhibit would be smaller than the one planned at Starry Night and would give us a chance to work on how we run our exhibit.

Otterbein has a Center for Community Engagement, and we will apply for a small award from them to help support our outreach activities. The BMB department budget will also help cover small expenses connected to our outreach program. These resources and the cooperation of the Starry Night organizers will ensure we can continue participating in this event after this year’s funding.

Our UAN chapter has been involved in many different outreach activities in the past. Some of these have been fundraisers, such as OtterThon which is a dance marathon to raise money for our local Children’s Miracle Network Hospital, and events supporting the Pancreatic Cancer Action Network’s pancreatic cancer research. Our chapter has also participated in
educational outreach programs by working with area schools and groups who have visited campus; our participation in Starry Night is an expansion of our educational outreach activities.

Starry Night is held annually in the Spring. To prepare, we will reserve our exhibit space and continue developing the activities and literature in the fall. In the early spring semester we will decide how many chapter members are needed to help run the exhibit and gather volunteers. By the time the event occurs we will have all the supplies prepared and our volunteers assigned to their stations. After the event we propose to share this activity with other groups in several ways. We will present this work as part of an outreach poster detailing UAN activities at the ASBMB national meeting. We will also write a short description of our event for the UAN newsletter *Enzymatic*. Finally, if our outreach event is a success we propose to write a manuscript and submit it to Biochemistry and Molecular Biology Education (BAMBED).

Our participation in Starry Night promotes the mission of ASBMB by presenting the molecular nature of life processes in a format that can be understood by the layman. Through our exhibit we can teach those in the community about the molecular level of life and the effects it has on their health and everything in the world around them, by making these concepts less foreign to them.

II Target Audience

Starry Night is an event for the entire family and we want to create an exhibit that is accessible and meaningful for all ages. Based off this past year’s experience we want to ensure that we have activities that are particularly engaging to elementary and middle school aged children, because they constituted the majority of the participants in our demonstrations. This is why we want to increase the hands-on learning experiences by having the children build their own DNA and protein models, as well as provide activities linking the models they create to diseases and other life processes. This should maximize the learning of our target audience while still allowing participation for younger children, and offering engaging opportunities for high schoolers and parents. This year we had a constant stream of visitors over the four hour event which is expected to grow next year.

III Evaluation

To assess the participants’ engagement in our exhibit we will give a short questionnaire to the parent(s) of every fifth child about their impressions of their child’s engagement with the exhibit, level of curiosity, attitude towards science and technology, and their impressions of the exhibit. We will also make note of how long families stayed at the table (less than 2 minutes, 2-5 minutes, more than 5 minutes) and how many of the activities the children participated in. The questionnaire will be developed from the Children’s Science Curiosity Scale and the Children’s Attitudes Towards Technology Scale which are found at the Assessment Tools for Informal Science website (http://www.pearweb.org/atis/tools/browse?assessment=true) In addition, parents will be asked questions such as: 1) Did your child enjoy the activities at the exhibit? 2) Which activity did your child like the most? 3) Did you learn anything about science at Otterbein through the exhibit? 4) Do you think your child had a worthwhile experience at this exhibit?
Success will be defined as creating a positive experience for our participants, and introducing them to scientific concepts in an engaging and enjoyable way.

Costs
Craft supplies such as pipe cleaners, beads, and candy to use for the demonstrations in the exhibit are needed; these items need to be bought in large quantities to meet the demands of our event. Banners and posters will be used to identify our group at the event and to provide information about the chapter and Otterbein’s BMB program; they will be used for other outreach events as well. The t-shirts will also be used at this event and others, and the budget request will help offset the cost of buying shirts for volunteer chapter members.

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<th>Expenses</th>
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<th>UAN Outreach Grant Request</th>
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