



SIGMA PI SIGMA

The physics honor society

Sigma Pi Sigma Chapter Project Award Proposal

Project Proposal Title	Physics for the People: Community Lecture Series
Name of School	Colorado School of Mines
Sigma Pi Sigma Chapter Number	349
Total Amount Requested	\$494

Abstract

The Colorado School of Mines Sigma Pi Sigma chapter is hosting a lecture series on advanced physics topics aimed at non-academics. Most university lectures are given at a very advanced level, so the goal of these lectures is to get high schoolers and community members more excited about physics.

Proposal Statement

Overview of Proposed Project

Our chapter is planning a series of lectures on interesting physics topics such as quantum mechanics and gravitational waves. We will rent an auditorium and advertise these lectures to high schools and to the Golden community. By gearing these lectures towards people with approximately a high school understanding of physics we hope to make them accessible to people from all walks of life. Our intended audience is quite broad: anyone from the Golden area and its surrounding towns with an interest in physics. The focus is, as mentioned above, on people who are not STEM majors. We are hoping to draw at least 200 listeners for each talk.

The goals of this lecture series are three-fold. First, we hope to excite community members, especially high schoolers, about physics. CSM hosts many lectures on various STEM topics, but very few of them are understandable to individuals outside of those particular fields. By specifically aiming these lectures to people with limited knowledge of STEM, we can help create a more scientifically literate population. Second, we hope to increase the visibility of the Mines Physics Department within the community. By recruiting Mines professors to speak, it shows the community what sorts of cool things are being done at the school. This is especially impactful to high school students, who may listen to the lectures and decide that is the field they want to pursue at Mines or elsewhere. Lastly, we hope to make this a lasting event for our Sigma Pi Sigma chapter to pursue. Our chapter has been relatively inactive for many years, and by starting this project now we can set the stage for many years of activity to come. We will also grow our involvement with the community through these lectures.

This project came out of an idea from one of our members. When she was in high school, a local college would host similar seminars on their campus and her modern physics class would attend every month. Our lectures would be modeled similarly to the ones she attended in high school, and would cater to the Golden area. The chapter will benefit from the recognition these bring, while the community will benefit from exploring more physics topics.

How Proposed Project Meets the Purpose of the Award

The primary purpose this proposal meets is raising awareness of Sigma Pi Sigma within the local community. It also raises awareness of our chapter within the physics community because it gets Mines professors involved in our events. The Sigma Pi Sigma name will be attached to all advertisements and handouts related to this event, and a brief introduction of the club will be given during each speaker's introduction. By attaching our name to the event community members and physics professors will associate our club with the lectures. We will also be distributing contact information at the events so attendees can keep up to date with the chapter and help us spread information about our events.

Plan for Carrying Out Proposed Project

The Sigma Pi Sigma officers will be responsible for most of the planning for the lectures. Progress will be monitored in weekly meetings, which will be led by the chapter president. The president will be responsible for keeping everyone on track, but each officer will have specific duties regarding this project. Two officers will share the task of advertising, one handling flyers and the other reaching out to high schools, another will be in charge of the speakers and speaker gifts, and the last will be in charge of scheduling. The chapter president will assist all officers as needed.

The primary challenge of this project will be advertising this event to the community. This will be done largely by posting flyers throughout Golden, reaching out to high school teachers, and advertising online. We are expecting high school students to make up the bulk of our audience, because our preliminary discussions with high school teachers have shown a willingness to encourage students to attend.

Approximately a dozen chapter members in total will be helping to plan and advertise this event. Largely the non-officers will assist by doing things like hanging posters and recommending topics. Additionally we will be receiving help from the physics faculty at Mines, who will be providing speakers.

Project Timeline

By December 5th we will have determined all three lecturers and their topics. Currently we have two of the three determined (Dr. Mark Lusk will speak on quantum mechanics and Dr. Frederic Sarazin on astronomy and astrophysics). By January 5th we will have decided dates and reserved venues for all of them. We are currently considering booking space at the Golden Mountaineering Center or Golden High School to better encourage community participation. Once dates are set we will begin our advertising campaign. We will contact local science teachers, informing them of the date of our first lecture. For about three weeks, from January 10th to the time of the lecture, we will have flyers hanging in Golden businesses and we will be advertising our event in the Golden newsletter and on the Golden public events website. All flyers will contain dates for all three lectures, so anyone who sees one event will know about all the future ones as well. We will be expecting the lecture outline from the professor a week in advance. Our first lecture will be in late January or early February. At this event we will be handing out our schedule of future events to everyone who attends. The second of the lectures will be in March and the third in April.

Project Evaluation Plan

Our chapter will evaluate the success of our first lecture on attendance and level of audience participation. Both of our currently selected speakers (Dr. Mark Lusk and Dr. Frederic Sarazin) are extremely dedicated to creating an interactive learning experiences and will be very helpful in gauging the audience's interest. In addition, monitoring the change in attendance between the lectures will help us evaluate the success of the event. If the attendance grows between lectures, we will know that attendees were interested enough to return and encourage their friends to attend future lectures. If the attendance falls, we will know that the lectures were unsuccessful.

Additionally, we will ask attendees to fill out a brief survey at the end of the third lecture. The survey will address whether or not the attendees learned something from the series, if the series has impacted their view of physics and how, and whether they would be interested in attending further lectures if we were to continue hosting them in future semesters. Since high school students are our key audience, we will also add a question for high school students asking if they are interested in pursuing a career in physics. By this, we will be able to discern whether or not we have reached our goal of making physics more attainable for the public. We will also know if we should continue holding the lectures in the future.

Budget Justification

If we were to receive the Sigma Pi Sigma Chapter Project Award, the bulk of the award would go towards renting a venue for the lectures. The lowest quote we have received from a venue in Golden is \$375/hour. We want to host the lectures in an odd-campus venue so that the event will be more accessible to the community. The citizens of Golden are extremely receptive to community events and will be more likely to respond well to the lecture series if it is hosted in a community venue rather than on the Mines campus.

The remainder of the award would be split among flyers to advertise the series, event programs, and a small gift to thank our speakers for their time as they will not be paid. We estimate that we will need 250 flyers to advertise the lecture series; at the rate from the copy center on campus, this will cost us \$50. The flyers will be distributed across the town of Golden from local restaurants to the library to schools. The flyers will be our primary source of advertising. We will print 200 event programs to help attendees follow along with the series and keep them up-to-date on upcoming lectures. The programs will cost \$44 and will be our primary advertisement for the second and third lectures and will provide extra guidance through the lectures for our audience. Finally, we will thank our speakers for donating their time either by providing them with dinner or a small gift. This is expected to cost \$25 per lecture.

Our chapter would use the award to fund our first lecture. The funding for the other lectures will come from our club budget provided by the Student Activities fee on campus. Any additional funds will be obtained through fund-raising.