

Dear CSU Extension Internship Application Committee,

Last summer, CSU's Little Shop of Physics (LSOP) and CSUE 4-H received an Extension internship grant and were able to create 30 hands-on experiments and guided activities (more details here: <https://www.lsop.colostate.edu/2021/08/23/what-i-did-last-summer/>). These experiments are easy to use for Extension Agents, with only a few minutes of training needed. The students who interact with the experiments feel empowered because they are experiencing science first-hand. Extension Agents can facilitate the science and leverage the experiments to teach different aspects of STEM at any grade level or to the public. At the Western National Round-Up, students enjoyed the hands-on activities because they could explore/discover the science in fun way. One student commented, "This is the kind of STEM I like!"

We are proposing a similar internship program to support a partnership that will build on existing expertise and existing resources to allow us to share STEM experiences focused on the STEM disciplines with K-12 students all over Colorado. The internship program will be developed and supervised by Heather Michalak (Assistant Director of LSOP), Ruben Flores (CSU Extension 4-H Specialist), and Brian Jones (Master Instructor and Director of LSOP), who will serve as the faculty mentor. Brian will coordinate research on the activities developed following the approach of recent research projects in LSOP.

There are many resources 4-H Extension has in the Career Pathways trailer, but currently they are unorganized and take time to set up for use. Originally the trailer was designed pre-pandemic, and not all activities are practical to use now. Extension Agents need a turn-key solution for sharing science physically distanced in different situations like indoors or outdoors. The goals of the internship are:

- Focus all activities to be inclusive
- Transform existing materials to be 90% self-guided hands-on activities
- Streamline the 10% of guided activities for ease of use
- Add some new hands-on activities
- Ensure all experiments can be done physically distanced in an indoor or outdoor setting
- Organize all materials in tubs with easy-to-use instructions

Many of the activities are low cost and use everyday items (some parts reused from items that would have been sent to a landfill). Our intent is to make science assessable to everyone and inspire them to use parts from garage sales, thrift stores, or grocery stores to create their own experiments.

The intern will be mentored directly by Heather and have regular meetings with Brian and Ruben. The internship work location will be at main CSU campus. This is a great opportunity for a future teacher and/or a person who would like to be able to learn how to reach the public and all grade levels.

These are the learning outcomes and professional development opportunities for the intern:

1. The intern will have a chance to learn science by teaching science.
 - We have found over the 30 years of Little Shop of Physics; people do learn by teaching.
2. The intern will be able to infuse lessons with their unique perspective.
 - Diversity and inclusion play an important role in science and science education. The intern will have the opportunity to share their own story and culture.
3. The intern will learn to develop hands-on science experiments that are engaging, simple, low cost, and durable.
 - This will include professional development in science education, engineering, and budgeting.
4. The intern will learn how to deliver training using hands-on materials.
 - This is an opportunity for professional development in teaching pedagogy for informal hands-on science education.

Check out more about the 4-H Mobile STEM labs and Little Shop of Physics during 2021/2022: <http://www.4hstemk12.colostate.edu/4-h-stem-mobile-lab-overview/> ; <https://www.lsop.colostate.edu/virtual-connections/>

Please feel free to email [Heather Michalak](#) or [Ruben Flores](#) with any questions.