# College of Science Outreach Activity Report: January 2020

## Biology Outreach

1. Science express New Teacher Training. Conducted training sessions for New Teachers in the Science Express program. Using Vernier equipment teachers performed two laboratory exercises to obtain and analyze experimental data. Worked with 6 Teachers.
2. Broader Impact Statement for faculty NSF grant submission: Met with Faculty Director of MEPEP (Molecular Evolution Protein Engineering and Production Facility) to discuss ideas for a K-12 Broader impact statement in support of the Faculty NSF grant submission.
3. Teacher Consultation on Advance placement Biology Laboratory exercise: Consulted with AP Biology teacher on using a DNA Lab exercise to effect a Three Dimensional learning approach to teaching/learning in AP Biology. This 3D approach incorporates
   1. The scientific and engineering practices,
   2. The Crosscutting Concepts, and
   3. The disciplinary Core Ideas that informs a deeper understanding of the lab content being taught.

## Physics Outreach

### SMAP

Students attending January SMAP conducted experiments simulating the formation of impact craters. Graduate researcher Adeene Denton and SMAP outreach volunteers presented.

### Service Learning

Service learning student Annabel Biggs created three new activities for Sidewalk Science.

### Sidewalk Science

Outreach and student volunteer (Brian Coleman) presented “Static Charges” to students at Dayton Elementary School, Dayton, IN.

### Scholarship of Engagement

Coordinator Sederberg co-authored an article published in the January The Physics Teacher documenting the service learning broader impact project Too Cool to Resist.

Faculty NSF Proposal

Submitted proposal with Maxim Lyutikov including a broader impact for a multi-institutional physics research center.

### Banners

Outreach continues to work with Marketing and Media in the design of a banner.

## Earth, Atmospheric, and Planetary Sciences Outreach

* + *Goal 1:* ***Support for K-12 science and mathematics educators***
    - Teacher Professional development
      * 5th Annual STEM Conference at Purdue
        + Presentation: Using Podcasts in The Classroom to Help Your Students Succeed
        + Helped staff the  College of Science Booth
      * Worked with outreach coordinators to plan spring and summer teacher professional developments.
      * Planning HASTI presentations
      * Planning The T in STEM teacher PD
    - Getting information out
      * Web **calendar of events** for EAPS K-12 outreach
        + <http://www.eaps.purdue.edu/outreach/Outreach_News.html>
      * We have a **Facebook** for EAPS Outreach
        + [https://www.facebook.com/EAPS.out](https://www.facebook.com/EAPS.out/)
      * Purdue **Science K-12 Outreach newsletter** goes out to 500+ subscribers.
        + <https://us4.campaign-archive.com/home/?u=1bbd2c49c28247b75608f1d3d&id=87beefd504>
    - Teacher Resources:
      * **Superheroes of Science podcast!** Podcast for students and educators interviewing scientists and science education specialist.
      * We have a **EAPS K-12 Outreach Pinterest** page to help teachers find resources in our content area.
      * We have many resources posted on our **departmental outreach web page**: <http://www.eaps.purdue.edu/outreach/index.html>
      * We have a **Youtube** channel for Superheroes of Science: <https://www.youtube.com/channel/UCIJnmp1MwUDtm_WMBSarEcw>
      * We have a **Twitter** account for Superheroes of Science: <https://twitter.com/PurdueSOS> @PurdueSOS
  + *Goal 2:****Create and facilitate programs that develop scientifically literate K-12 students***
    - AP Friday Groundwater contamination lab on January 31st
  + *Goal 3:****Create opportunities for broader impact***
    - Released for the **Superheroes of Science Podcasts** this month:.
      * Released podcasts from Gustavo Rodriguez-Rivera, Lynn Bryan, and Robert Nowack
      * Started Youtube channel for podcasts and recording podcasts in green rooms.
    - Submitted DUKE Energy grant proposal.
    - NSF grant consultation with Betsy Parkinson.
    - Consultation with Rachel Haselby, 4H Youth Development Extension Specialist - Computer Science, on future Outreach collaboration.
    - NSF grant consultation with Raluca Ostafe.
    - Consultation on broader impact for GSA grant with Alexandria Koester.
    - Met with Corey Thompson for Project SEED 2020 planning.
* Personal professional development:
  + Completed application to be a Volunteer Examiner (VE) for the American Radio Relay League (ARRL).

## Chemistry Outreach

* **Professional Development and Support for K-12 Educators**
  + Planning for upcoming teacher PD
    - Feb - The 'T' in STEM
    - Middle School summer workshop
    - Consultation with Brooke Max (Mathematics) for involvement with Math Outreach during summer PD
  + 5th Annual STEM Conference at Purdue
    - Presentation: Using Podcasts in The Classroom to Help Your Students Succeed
    - College of Science Booth
  + Submitted DUKE Energy grant proposal.
* **Programs to Develop Scientifically Literate K-12 Students**
  + Co-taught 4th grade Warren Central Elementary with Professor Brooke Max (Mathematics) - Writing exact instructions, algorithm basics, and recognizing types of quadrilaterals
  + Students from Portage High School came to Purdue to participate in an AP Friday lab session on January 31 over Groundwater Contamination.
* **Opportunities for Broader Impact**
  + Started Season 2 of *Superheroes of Science* and added a YouTube channel for video posts of Season 2 episodes.
  + NSF grant consultation with Betsy Parkinson.
  + Consultation with Rachel Haselby, 4H Youth Development Extension Specialist - Computer Science, on future Outreach collaboration.
  + NSF grant consultation with Raluca Ostafe.
  + Completed application to be a Volunteer Examiner (VE) for the American Radio Relay League (ARRL).
  + Consultation on broader impact for GSA grant with Alexandria Koester.
  + Met with Corey Thompson for Project SEED 2020 planning.

January 2020 podcasts and YouTube videos released for *Superheroes of Science* include episodes recorded with Professors Gustavo Rodriguez-Rivera, Lynn Bryan, and Robert Nowack.

## Computer Science Outreach

## Science Express

Science Express-The Chemistry, Biological Sciences, and Physics Departments of the Purdue College of Science deliver research-grade instruments to high schools in 17 Indiana counties. Through the month of January 59 school visits were made and there were 3911 student/equipment interactions.