## Biology Outreach

1.) Ivy Tech Comm. College TSAP Advisory Board meeting: Attended the inaugural meeting of Ivy Tech TSAP (Transfer as a Junior Biology Major to Purdue) as an Advisory board member. The TSAP board is a group of University, Business and Community stakeholders that advise the Ivy Tech Community College, Lafayette on curricular and teaching /learning issues, programs and requirements that results in the successful transfer of Ivy Tech Biology students to Purdue as Junior Biology majors.

2.) Biology Focus Visit: Attica HS. Hosted Attica HS AP Biology students and their Teacher to day long visit to the Biology Department. Students engaged in a Hands-on AP Biology Laboratory activity on Electrophoresis. They also visited research labs in the department and heard from research faculty on current research taking place in the Department.

3.) NMSI AP Biology SSS (student Study Session): Presented a NMSI (National Math Science Initiative) SSS session at the Speer Academy High School in Chicago IL.. Eighty (80) students and 4 teachers attended. Topics covered were: Osmosis, diffusion, photosynthesis, cellular respiration and water potential.

## Physics Outreach

SMAP

Students attending December SMAP, Lives of the Stars, used a web simulation to collect data to create an H-R Diagram, graphing the evolution of star formation as a function of time. Professor Kyoung-Soo Lee presented.

Faculty Broader Impact

Worked with Maxim Lyutikov in the design of broader for a multi-institutional physics research center..

K-12 STEM brown bag lunch

Attended College of Science lunch topic, Minorities in STEM and Engagement.

Banners

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

Study Abroad Callout

Outreach and Professor Lynn Bryan held a second callout for the proposed summer 2020 course, 2020 Study Abroad in Singapore.

## Earth, Atmospheric, and Planetary Sciences Outreach

* + *Goal 1:* ***Support for K-12 science and mathematics educators***
    - *Teacher Professional development*
      * *Worked with outreach coordinators to plan spring and  summer  teacher professional developments.*

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* + - *Getting information out*
      * *Web* ***calendar of events*** *for EAPS K-12 outreach*
        + [*http://www.eaps.purdue.edu/outreach/Outreach\_News.html*](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*](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*](http://www.eaps.purdue.edu/outreach/index.html)
  + *Goal 2:****Create and facilitate programs that develop scientifically literate K-12 students***
    - *Hosted 2019 Indiana Virtual Science Symposium and evaluated projects that were submitted by Indiana high school students.*
    - *Campus visit for Frankfort GT program*
  + *Goal 3:****Create opportunities for broader impact***
    - *Released for the* ***Superheroes of Science Podcasts*** *this month:Lisa Welp, Chris Andronicos, Robin Tanamachi, and Stephen Hoffmann.*
    - *Attended meetings for the* ***GLOBE U.S. Partner Forum****. Steven Smith finished up his terms as the U.S. At Large Representative and Chair of the forum this month.*
    - *Met with the NatGeo Advisory Board. Steven Smith finished up his term on the advisory board for* ***National Geographic Education*** *for Indiana*
* *Personal professional development:*
  + *Earned Extra Class Amateur Radio license*

## Chemistry Outreach

* **Professional Development and Support for K-12 Educators**
  + Met with Purdue Conferences to discuss planning and development of registration links for Summer 2020 teacher professional development.
  + Consultation with Purdue graduate student (and past high school science teacher), Graham Lyon, to discuss future student projects and possible teacher professional development ideas.
* **Programs to Develop Scientifically Literate K-12 Students**
  + Hosted 2019 Indiana Virtual Science Symposium and evaluated projects that were submitted by Indiana high school students. Winning topics of the College of Science Staff Choice Awards follow. **Project 1:** Study of EC and TDS over the length of Garrett City Ditch. **Project 2:** The Correlation Between the Nitrogen and Electrical Current.
  + Students from Frankfort Elementary Schools came to Purdue to participate in hands-on learning activities on December 10.
  + Co-presented a lesson with Dr. Brooke Max (Purdue Mathematics) to 6th grade students at Warren Central Elementary School on December 17 over the topic of estimation.
* **Opportunities for Broader Impact**
  + December 2019 podcasts released for *Superheroes of Science* include episodes recorded with Professors Lisa Welp, Chris Andronicos, Robin Tanamachi, and Stephen Hoffmann.
  + Received my Extra Class Amateur Radio license through the Purdue Amateur Radio Club.

## Computer Science Outreach

Below is my final CS Outreach report. I will be officially departing Purdue at the end of the month. All of my work for December will be focused on the transition of tasks to Sean Flannery (a graduate student who will be assisting with the running of the MAGIC program), and to creating documentation for my replacement. I will note that I still do not have clarity on CS Summer Camp or CS180x, both projects that will need some attention if they are to be continued.

I was briefly on campus this month to address the moving of some of the outreach equipment that was stored in various places throughout the building. To my chagrin, this was moved before I had arrived and was placed into a storage closet in the graduate RA lab that was at a very high temperature. I did not have a chance to test the equipment, but we did throw out a large number of giveaway items that had been warped or damaged by the heat. The remaining items were moved to a series of cabinets outside of Victory Soe’s office in the Lawson basement. Other items can be found in my office, and in the cabinet across from the 2nd floor administrative assistant. In addition to this housekeeping task, I had a number of meetings to resolve lingering issues for Outreach in CS, particularly with regard to the continuation of existing programs after my departure, and the resolution of a few business office related items. I did pick up a parking ticket for parking in the structure during my final day on campus, which Dongyan has agreed to help cover, for which I am appreciative.

We are now wrapping up the second of four parts of the CS180x MOOC AP CS A course. This section involved the integration of new AP CS A labs that have been released for use in the 2019-20 school year. We have encountered some problems with the Vocareum autograding system in the last week which will need to be addressed going forward. My student TAs have not been able to solve them as of yet, and I will connect with Victory Soe (or Sean if this falls within his purview) to see if we can’t resolve them before the course closes next week. Our third course starts in January and currently has 377 students enrolled (34.8% female; 46.2% USA). The teaching assistants will need someone to connect with regarding the content of the course, and there should be someone in charge of the course for purposes of managing the edX system. I have enough funding from the original edX grant to continue paying the TAs through the end of the school year.

The MAGIC mentors have continued their work in the Lafayette school system working with both middle school and high school girls. They have been making weekly trips to Sunnyside Intermediate, Wea Ridge Middle, and McCutcheon High to serve about 30 total students. Going forward under the leadership of Sean Flannery and Sasha Kipnis, the women in the program are looking to expand to Tecumseh Middle School in Lafayette and will be taking a field trip to Raytheon in March. The funding for this program has been terrific, and I would like to advocate for its continuation. The work we have done in the local community has been well received, and the impact on the college students that participate has been immeasurable.

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# 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 December 16 school visits were made and there were 1142 student/equipment interactions.