# Multi Department Activities

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 September 69 school visits were made and there were 4288 student/equipment interactions.

## Biology Outreach

1. Summer Pre-Med Program Follow-up Meeting: Attended the Follow-up meeting of the 2019 SummerPre-professional experience and began planning activities for the summer 2020 program. Biology Outreach is tasked with providing activities that focus on students considering a medical career.
2. Community Outreach visit: Briarwood Lafayette. Worked with 5th and 6th grade students tutoring science.
3. Made outreach visits to the following schools; Westside HS, Harrison HS, Lafayette Jeff HS, Central catholic HS and McCutcheon HS. Purpose of visits were to invite Biology students to the Dept. Biology “FOCUS VISIT’ Fall Days at Purdue. This event will be held on October 19th 2019. Outreach visits for this event were also made to the following schools; Frankfort HS, Clinton Prairie HS, N. Montgomery HS, Crawfordsville HS and S. Montgomery HS.
4. Three Dimensional Learning with Carolina. With a generous donation from Carolina Biological of one of their 3D Kits, a teacher workshop is planned for November 2019 to explore 3D teaching and Learning.

## Physics Outreach

HASTI

Physics and Astronomy wrote and submitted two proposals for HASTI, both of which will include faculty representation.

SMAP

September SMAP presented to 23 students in grades 6-12. The topic of the month was related to the planets and solar system. One high school teacher also attended the session.

Faculty Broader Impact

Outreach met with new faculty member Nina Lashkari to discuss broader impact ideas.

Service Learning

Physics 295, Service Learning in Outreach continues to meet weekly. Outreach projects include work on SMAP, creating laminated instruction inserts for Science Express kits, and a 3D printing design project in preparation for HASTI.

Banners

Outreach met with marketing and media to explore ideas for a pop up banner for outreach programs.

Homecoming planning

Outreach met with SPS students to prepare demonstrations for Homecoming.

## Earth, Atmospheric, and Planetary Sciences Outreach

* + *Goal 1:* ***Support for K-12 science and mathematics educators***
    - Teacher Professional development
      * Co-facilitated Professional Development workshops for teachers at Garrett High School, South Newton Middle School, and Sheridan High School
      * Submitted proposals for presentations at 2020 HASTI:
        + Elementary GLOBE Professional Development (3 hour workshop)
        + Using Podcasts in the Classroom
        + Middle School Demo Show
        + Weather in the Elementary Classroom.
        + Story Maps: Tech Literacy Across Disciplines
      * .Working with various Purdue departments and teachers to create new AP learning experiences for our AP Friday program.
    - Getting information out
      * Created 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 499 subscribers.
        + <https://us4.campaign-archive.com/home/?u=1bbd2c49c28247b75608f1d3d&id=87beefd504>
    - Teacher Resources:
      * **Superheroes of Science podcast!** We started and and released following platforms: Apple Podcasts (iTunes), Google Play, Podbean, Stitcher, Blubrry, and Libsyn.
      * We have a **EAPS K-12 Outreach Pinterest** page to help teachers find resources in our content area.
  + *Goal 2:****Create and facilitate programs that develop scientifically literate K-12 students***
    - Taught at the Hydrology station for the Tippecanoe County Partnership for Water Quality Wonders on the Wabash program on September 12, 12, 19, 24, 25
    - Students from Lafayette Jefferson High School and Huntington North High School came to Purdue to participate in an AP Friday lab session on September 13 over Hydrology.
    - Taught plate tectonics in classes at an Alaskian school
    - Students from Huntington North High School, Southwood High School, and Crawfordsville High School came to Purdue to participate in High School GIS Day on September 27.
    - Working with various Purdue departments and teachers to create new AP learning experiences for our AP Friday program
  + *Goal 3:****Create opportunities for broader impact***
    - Went to Alaska with Dr. Julie Elliott to help/learn about her fieldwork and to teach at schools in her research area.
    - Released for the **Superheroes of Science Podcasts** this month: Phil Sands, Christina Li, Dan Chavas, David Eichinger, and Srividya Iyer-Biswas.
    - Participated with the Global Learning and Observations to Benefit the Environment (GLOBE) 2019 **North American Regional Meeting (NARM)** planning committee to help organize the meeting scheduled for this coming October at the University of California, Berkeley.
    - Helped with broader impacts for an NSF grant that is being written by Mike Reppert, Assistant Professor of Physical Chemistry.
    - Helped with broader impacts for an NSF grant that is being written by Alexander Gluhovsky, Professor of Statistics and Earth, Atmospheric, and Planetary Sciences.
    - Met with Nickolas Hirschberg (College of Science IT), Bill Bayley and Sarah Nern to discuss implementing a united calendar for College of Science Outreach.
    - Attended meetings for the **GLOBE U.S. Partner Forum**. Steven Smith (EAPS K-12 Outreach Coordinator) is the U.S. At Large Representative and Chair of the forum.
    - Steven Smith is serving on the advisory board for **National Geographic Education** for Indiana

## Chemistry Outreach

* **Professional Development and Support for K-12 Educators**
  + Presented to pre-service teachers in Professor Sanjay Rebello’s EDCI 424: Science Methods course about resources available through Chemistry Outreach.
  + Submitted proposals for presentations at 2020 HASTI: Elementary GLOBE Professional Development (3 hour workshop), Using Podcasts in the Classroom, Middle School Demo Show, and Weather in the Elementary Classroom. Additionally collaborated with Kathy Kozenski from IUPUI to submit a proposal for a presentation.
  + Traveled to Garrett High School, South Newton Middle School, and Sheridan High School for Fall 2019 follow-up professional development meetings with teachers that participated in our summer professional development: Integrating STEM in the Environment.
* **Programs to Develop Scientifically Literate K-12 Students**
  + Hosted students from Pine Village Elementary school on campus. Students learned several GLOBE protocols and collected atmospheric data.
  + Taught at the Hydrology station for the Tippecanoe County Partnership for Water Quality Wonders on the Wabash program. This program served 6th grade students from Tippecanoe County.
  + Students from Lafayette Jefferson High School and Huntington North High School came to Purdue to participate in an AP Friday lab session on September 13 over Hydrology.
  + Students from Huntington North High School, Southwood High School, and Crawfordsville High School came to Purdue to participate in High School GIS Day on September 27.
* **Opportunities for Broader Impact**
  + Met with Nickolas Hirschberg (College of Science IT), Bill Bayley and Steven Smith to discuss implementing a united calendar for College of Science Outreach.
  + Participated with the Global Learning and Observations to Benefit the Environment (GLOBE) 2019 North American Regional Meeting (NARM) planning committee to help organize the meeting scheduled for this coming October at the University of California, Berkeley.
  + September 2019 podcasts released for *Superheroes of Science* include episodes recorded with Phil Sands (Purdue College of Science Computer Science Outreach Coordinator), and Professors Christina Li, Dan Chavas, David Eichinger, and Srividya Iyer-Biswas.
  + Helped with broader impacts for an NSF grant that is being written by Mike Reppert, Assistant Professor of Physical Chemistry.
  + Helped with broader impacts for an NSF grant that is being written by Alexander Gluhovsky, Professor of Statistics and Earth, Atmospheric, and Planetary Sciences.

## Computer Science Outreach

This month, the MAGIC mentors did a number of recruiting sessions for their coding clubs and then started visiting schools. We are partnered with Lafayette Sunnyside Intermediate, Wea Ridge Middle, Jefferson High and McCutcheon High this year. Each school has between 5 and 15 students participating in the afterschool clubs, and MAGIC has 20 undergraduates enrolled in the service learning course. Jenni Montes has done an adequate job managing the logistics of the course. In particular she has done a nice job helping the students with transportation as needed. One negative thus far has been the efforts at Jefferson, which have yet to get off the ground. We are working with a new cooperating teacher and she did not show for the first course meetings. We’re in communications with last year’s Jeff teacher to try and remedy the problem and get things back on track.

My ROCS service learning course is no longer active, but I did hire an undergraduate student, Megan Walsh, to help with events. This past month, we ran two lab events for Lillian Evans, who was hosting two student groups on campus. George Washington High School in Indianapolis sent about 25 students along with their CS teacher, Ms. Angie Jones to visit campus mid-month. Megan ran a Javascript activity for the students that she and I co-developed. Later in the month, a few of my MAGIC students helped run a visit with Merrilville High School students. This was a Python activity that made use of a web API to manipulate live data. Almost all of the students in attendance were from underrepresented minority groups, and Lillian included both a campus tour and CS information in addition to our outreach activities.

The CS180x MOOC AP Computer Science A course that we are continuing to run launched in September for the 2019-20 academic year. My teaching assistants and I are working with 1458 students (30.6% female; 58.8% from U.S.), which includes one Indiana high school classroom, and two out-of-state classrooms (California and Washington). The current six-week course ends on October 16, and the second course will begin a week afterwards.

Lastly, I have continued to help Indiana Computer Science Teachers Association (CSTA) with the re-launch of the Indiana chapter in partnership with folks from Indiana DOE, Nextech, and the national CSTA. We are working on organizing smaller groups within the state to help with the long-term health of the chapter. I will be making visits to Fort Wayne and South Bend during the upcoming months in order to help the local CSTA teachers host meetings.