**Multi Department Activities**

Science Express-The Chemistry, Biological Sciences, Earth and Atmospheric and Planetary Sciences, and Physics Departments of the Purdue College of Science deliver research-grade instruments to high schools in 17 Indiana counties. Numbers for the month of February are as follows:

Department       School Visits       Student/Instrument Interactions

Chemistry           17 1041

Biology                 19 1637

Physics                 2 167

EAPS                      10 571

**Biology Outreach**

 1).Attended the executive meeting of IABT(Indiana Assoc. of Biology Teachers). Participated in planning Association activities for the 2018 –2019 school year.

2).Met with Pauline Shen, Director of the Lafayette Briarwood community Outreach. Biology Outreach is interested in starting an after school tutorial program for students in the community. Discussions are ongoing.

**Physics Outreach**

PHYS 295 up and running (Service Learning in Outreach).   Students this semester are working on projects for SMAP and Science Express, both using the design and fabrication facilities at BIDC.

Grant proposal for the NASA Heliophysics Early Career Investigator Program (ECIP) with Matthew Route in Research Computing.

Grant from Indiana Space Grant Consortium was approved for our SMAP program.

**Earth, Atmospheric, and Planetary Sciences Outreach**

* + **Equipment loan**
    - Our participation is **Science Express** is proving to be beneficial in that we have teachers of college bound students using equipment in our content areas.
    - We have a number of **EAPS kits and small equipment** items that we loan out to teachers as well as university faculty and students. EAPS 102 borrowed a number of items this month.
    - Imagination Station has our **Traveling Solar System Wall** on display.  Hundreds of visitors to the museum see the exhibit monthly.
  + **GLOBE** 
    - Set up the Indiana GLOBE Virtual Science Symposium
      * Grad students will be mentoring high school and middle school student’s projects.
      * This is funded through last year’s Halliburton Foundation grant.
      * Attended meetings for the **GLOBE U.S. Partner Forum**. Steven Smith (EAPS K-12 Outreach Coordinator) is the U.S. At Large Representative.

**GLOBE Weather Network**:

* + - * We are working with central Indiana locations that have a weather station, to post their data to the GLOBE web site under the Purdue University partnership. We are working on installing one at Imagination Station.
      * Taught Hydrology lessons with Jeff High School AP Environmental Students
      * Taught site setup and Atmospheric protocols with Puru Middle School students
  + **Collaborations,  including broader impacts and instrumentation**
    - Have been working with Prof. Dan Dawson on Disdrometer station.
    - Collaborated with Prof. Lisa Welp on organizing our 2017 Halliburton Foundation grant activities.
      * We are having EAPS grad students make introductory videos to allow K-12 students to know who they are. Steven Smith has begun recording and posting the videos. <http://www.eaps.purdue.edu/outreach/people.html>
      * We are having EAPS 137 students make videos for this as a project.
      * We had a good summer professional development for teachers on how to facilitate student research projects using data.
      * The Indiana Virtual Science Symposium is coming together.
  + **Student events:**
    - Student groups visited campus
      * AP Environmental studying Hydrology
    - School /event visits
      * Lafayette Urban Ministry summer camp teaching waves
      * Peru Middle School teaching GLOBE atmospheric science
      * Gold Academy in Indy teaching about Solar System
      * Blue Ridge Elementary helping with Outdoor Learning Area
  + **Getting information out**
    - The outreach Newsletter: (<http://www.eaps.purdue.edu/outreach/newsletter.html>)
      * Reached 448 teachers that have signed up!
      * Collaborating with Chemistry’s K-12 Outreach Coordinator (Sarah Nern) on the content of the newsletter.
      * September will be Computer Science focused as we are working with Phil Sands form CS to put that issue together.
    - Purdue e-pubs
      * Had 4 new downloads in August 2018 across 6 papers in Purdue e-Pubs.
      * Meet with new grad students about outreach opportunities.
      * Made a number of posts on Facebook through https://www.facebook.com/EAPS.out/ and <https://www.facebook.com/PurdueSE/>
* **Looking forward**
  + In September we will be very busy with groups visiting campus and school/community visits!

**Chemistry Outreach**

* **Outreach for Indiana K-12 Educators**
  + Presented lesson with Steven Smith, EAPS Outreach Coordinator, about visible and ultraviolet light to 86 students participating in Lafayette Urban Ministry summer camp at Hanging Rock in West Lebanon, Indiana.
  + Helped develop the Purdue College of Science K-12 Outreach August newsletter
    - Theme: Back in the Saddle
    - Newsletter currently has over 445 subscribers
  + Continued working with Graham Lyon (Tri-County High School) to develop lab kits for Integrated Chemistry Physics teachers to use with the Science Express program.
    - Kits being developed include hands-on equipment for students to explore: Kinematics (motion), Kinetics (pendulums), Waves, and Electricity.
    - A September half-day professional development opportunity is being planned for Science Express teachers to get trained on these specific kits.
  + Visited 8th grade students at Peru Jr High School with Steven Smith
    - Follow-up classroom visit from summer GLOBE workshop. Participating teacher from workshop asked for help in defining GLOBE sites at her school.
    - Two sites were defined at Peru Jr High School on the GLOBE site allowing students to now be able to upload atmospheric data readings.
    - Students learned protocols for collecting air temperature and relative humidity readings and estimating cloud cover.
    - Students will be using data from these and other protocols to develop research projects to submit to the Indiana Virtual Science Symposium this November.
  + Awarded grant from Halliburton Foundation for $22,000: Bringing High School A.P. Classes to Purdue University for Labs. This was co-written with Steven Smith, EAPS Outreach, and will apply toward our AP Friday program during the 2018-19 school year.
* **Faculty collaborations**
  + Met with Christina Li to continue plans for AP Chemistry lab session during Fall 2018 semester. Christina is planning an Electrochemistry lab and will also visit with students about her research at Purdue.
  + Attended the Annual Safety Meeting led by Alex Wei for A/P Staff safety representatives.
  + Met with Chris Bishop from Purdue Conferences to inquire about available space at Purdue to use as a satellite location to broadcast sessions from the 2019 CERM Conference held in Midland, MI.
    - This stemmed from a request forwarded from Marcy Towns on behalf of another colleague.
  + Met with George Takahashi (Envision Center) to firm up plans for AP Chemistry lab session during Fall 2018 semester. We are planning a Molecular Modeling lab session that will showcase the work of Dr. Gaurav Chopra and the MINT app. Dr. Chopra will give the introduction to this lab and students from the Envision Center will help facilitate the session with the participating AP Chemistry students.
* **Science Express Labs and Instrumentation**
  + Added clamp light and bulb to the Weather Wonders lab kit to better visualize water vapor vortex.
  + Added Exploring Kinetics lab kit (specifically for ICP teachers) to the Science Express schedule.
  + Modified thermal gloves with the GLOBE Atmosphere kits according to online instructions to allow infrared thermometers to operate while inside the gloves. This allows thermometers to go from indoors to outdoors without affecting temperature readings.
  + Worked with Zach Grigsby to update the lab: Column Chromatography on the Science Express webpage. We added two new labs on the Chemistry Lab page: A Twist on Titrations and Enthalpy of Solution, both developed by Dr. Nicole Hume. We also added the lab: Exploring Kinetics, developed by Graham Lyon, to the Integrated Chemistry Physics Lab page.
  + Helped develop Breakout lesson for Solar System display that will be added to the Science Express equipment list.
  + Total of 13 students from Jefferson High School came to Purdue to participate in an AP Friday lab session on August 31. Students used Science Express Labquest 2s along with Vernier Dissolved O2, gas pressure, temperature, pH, and conductivity probes, and HACH kits to complete a hydrology water quality study.

**Computer Science Outreach**

As the Purdue semester started, my ROCS and MAGIC service learning groups and the corresponding courses started. I have 43 students between the two groups, which is three over the cap. I allowed the advisors to add three freshmen to MAGIC that I had met during the CS Bridge program. I feel that the positive impact of being involved in MAGIC, and having a group of older students that can help advise the freshman students may help to keep them engaged during their first semester. I had success with this last year, as my MAGIC mentors and I were able to help two students stick with CS through some early adversity. I do mention it however as I feel as if these courses have become quite popular and that we might need to find some way to manage the larger groups in future semesters. Our department continues to grow, and our staff remains the same size in spite of this.

MAGIC will be visiting five schools this Fall, and we have trips scheduled four days of the week in the afternoons. We will be at West Lafayette Jr/Sr High School on Tuesdays, Wea Ridge Middle School on Wednesdays, Jefferson High School and Tecumseh Middle School on Thursdays, and McCutcheon High School on Fridays. In addition to these weekly visits, we are planning one Fall event on campus to bring all of these students together. I will have more information on that to come. I am also looking for a faculty member to come and talk to the MAGIC mentors during class on Mondays, and would appreciate any recommendations you might have. In the past, Roopsha Samanta, Jen Neville, Sunil Prabhakar, and Susanne have been guests during our class. The experiences that they shared with our students have been a very popular highlight of the semester.

The ROCS group has a number of events on the calendar, but only participated in one during the month of August. The West Lafayette CoderDojo, which hosts events at the Anvil on Purdue’s campus, had their kickoff at the end of the month. My students ran a series of stations talking to the students about computer science and CS careers. We will be assisting this group each month, although the group that is running the CoderDojo has decided to reach out to Purdue student organizations to run each monthly session (CSWN is running the September one, for example). I’m a bit anxious about this decision, but we’ll support them through the expected bumps that they will face.

Much of my month was spent in preparation for the CS180x MOOC course that we are running on edX. This course launches today, and I have hired a group of students to assist me in running it. We are currently at about 500 students in the class, but I expect that this will increase over the first two weeks as edX advertises it more heavily. This year I expect that most of my work will be focused on working with students directly, as opposed to previous years when I spent more time working on video content and course assessments. I will also mention that Tim Korb has allowed us to use a digital copy of his “Start Concurrent” textbook with CS180x. We plan on integrating the book to enrich the student experience.

My graduate courses started back up in August. I will be taking one course virtually at MSU and one in-person at Purdue. My MSU course meets on Wednesday afternoons, and I will be in a conference call during the 12:30-3:30 window. My in-person class meets on Monday evenings in Beering and is with Brenda Capobianco, for whom I have taught computational thinking in her elementary science education methods course. I will try to keep my school commitments from interfering with work as much as possible, but I wanted you to know that I had one course conflict that was unavoidable.

In addition to taking courses, I am co-teaching a course with Dr. Aman Yadav at MSU this semester. This is part of a graduate certificate program in computer science education that we are offering as a three course sequence. The first course is in computational thinking, and I will be hosting graduate students in an online chat on alternating Tuesday evenings starting tonight. I am also developing the course content, so this will be an additional part of my commitments this semester.