



# natural sciences

## AT PARKLAND COLLEGE

### Fall 2017 Newsletter

#### *Letter from the Chair*

As the end of another semester draws near, I'm often struck both by how rapidly the break is approaching and by how many things must be accomplished in that short time. Because of this, I appreciate this opportunity step back and consider where we are as a department.

Since the last newsletter, several issues have been resolved, while others still loom. The Board of Trustees membership questions are largely answered. Charles Westfield was sworn in as a Trustee in October, laying many questions about the Board to rest. The State of Illinois now has a budget and some of that money has come to Parkland, benefiting us in myriad ways. But grave concerns for future funding from the State remain, as does the College's intention to run independently of State monies. While this is fiscally responsible (and possibly necessary), it will have consequences for what resources we have at our disposal going forward.

One aspect about serving as Chair of Nat. Sci. that I value is that I am in an almost constant state of conversation with insightful professionals. This semester has been no exception. Whether it's a brownbag with Dr. Ramage (unfortunately, I was unable to attend), hallway "meetings", email or more formal meetings, the discussions we have help define us, bring us together, and help shape how to move forward as a team.

One conversation we've had this semester concerns the new form students are required to sign if withdrawing from a course. There have been a few hiccoughs, such as: 1) many students being directed to the Chair rather than their instructors, 2) students not realizing that an email can serve as a "signature" from that instructor, and 3) my not realizing until late that it would be important for me to inform the instructor when I sign a student's form. But, the goal for the form was to spark conversations between students and their instructor. Even when withdrawal is, finally, the best decision for the student, I feel certain that a conversation discussing the consequences of withdrawal is beneficial. In the near future, we'll be given opportunities to express our thoughts on this form as part of our "normal" processes. Please be candid and forthcoming with your opinions.

We have begun the process to re-initiate the search for a full-time faculty member credentialed to teach microbiology. This is excellent news for our department and I look forward to the conversations this will involve in the coming days/weeks.

There were conversations of many sorts between folks serving on IAI panels and those with content expertise. Dean Sutton served on Chemistry Majors panel for the first time this semester. Although she has no content expertise in chemistry, she worked with our faculty and was able to give insightful and beneficial feedback on the submissions (including our own) and the process itself. In a similar vein, I served on the Physics Majors panel for the first time this semester. As many have said before, serving on an IAI panel has great value. It gives insight into the process and the reasons the panels ask for the information they do. It also gives us an opportunity to help shape that process and to make sure that institutions are given as much freedom as possible to achieve the required outcomes in the way the specific instructors think is best.

A provocative department-wide conversation conducted (at least in part) via email explored the issue of underprepared students and how we interact with them. I read many insightful and compassionate thoughts that acknowledged that we do have a significant population of these students. One reason we are here is to help these students understand the expectations (behavioral, time commitment, and academic) they must meet to be successful. At the same time, however, it is imperative that we strive to help students meet these academic standards, not lower them. As many factors impinge upon us, as an institution, which might motivate us to lower our expectations, we must fight against this tendency as best we can. The best instructors (and supervisors) I have had were those who maintained clear but high expectations.

While I have not yet seen the results of the Department's assessment of me as a Chair, Spring 2018 will include a conversation between us about my continuing, or not, to serve as your Chair. I anticipate a forthright, open conversation. In the meantime, I remain honored to represent the outstanding faculty of such a dedicated, active department.

Enjoy the newsletter! I'm personally gratified to see former Chair Rich Blazier's first installment of a series intended to outline some aspects of our origin as a College and a Department. A big "thanks" to Britt and to all who contributed. Wishing you and yours a wonderful break, a joyful new year and sincere best wishes for the rest of your Fall 2017!

Sincerely,

Scott

## Department Initiatives

### IR Cameras

*Written by Dave Wilson*

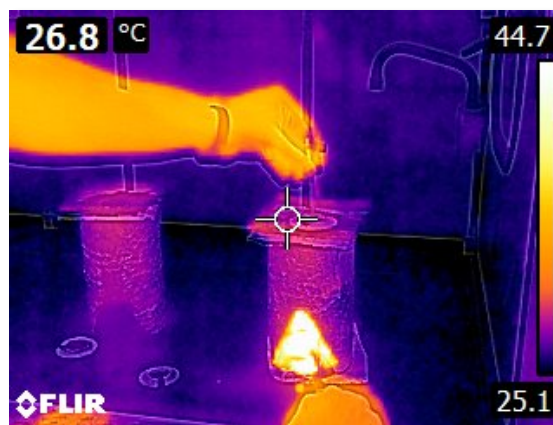
Our department currently has 2 Flir E6 infrared cameras (<https://www.flir-direct.com/product/flir-e6-ir-camera-w-msx>) that you can check out. They are now being stored in the IMC and you can contact LeeAnne Byers for instructions on how to reserve them. They are getting use from several disciplines within our department and I just wanted to relay a few of those stories in hopes of inspiring you to explore other applications.

In forensics, John Moore talks about various cooling mechanisms of the body after death. He demonstrates this by using the IR camera to measure the temperature of a hot mug of water periodically while lecturing on this topic. The resulting change in water temperature roughly correlates with cooling of the body after death. This curve can then be used to talk about how one can extrapolate back in time to estimate time of death. One extension of this idea could be to create a cooling curve while having a fan blow over the hot water illustrating how environmental factors can affect the rate of cooling.

When discussing spectra and blackbody radiation, Erik Johnson has relied on images in his lectures to show that people emit infrared light. Now, he prefers to let the students see it for themselves. Thanks to the temperature measurements, it provides a direct illustration of the Stefan-Boltzmann law at a scale the students can conceive rather than talking about stars that have surface temperatures of thousands of Kelvins. One of his favorite aspects of

viewing through infrared is seeing how poorly it transmits through glass, which shows an important component of the greenhouse effect.

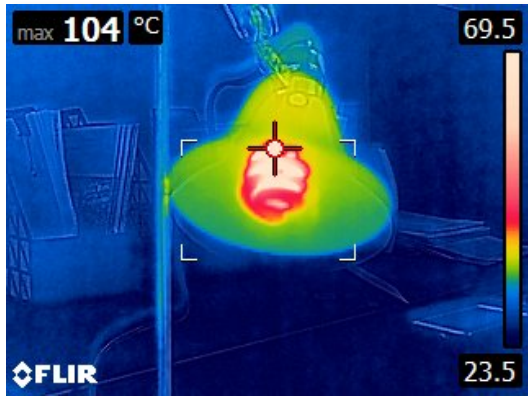
Several instructors use the IR cameras in CHE101 labs (see image below). Students fashion a rough calorimeter and then measure the amount of energy released when burning a food item in order to estimate its caloric content. However, they are warned that there is significant error because of heat loss to the atmosphere. With the IR cameras they can directly observe this heat loss.



Mindy Tidrick employs the cameras in a clever way with her CHE106 students to demonstrate heat capacity. She has students feel 2 objects, such as metal and wood, and then assess which one is cooler. Then using the camera she demonstrates that the 2 objects are in fact in thermal equilibrium with the atmosphere (I imagine the students gasping at this point). She then has one student press their hands to the steel and wood object while singing a chorus of 'Happy Birthday' and then shows with the camera that the metal one is now quite a bit warmer than the wood object (more surprised gasps). This can lead to various discussions about thermodynamics applications in chemistry.

## IR Cameras

Mindy also uses the cameras in ESC102 to demonstrate that crystallization in supersaturated solutions is affected by temperature variations. I imagine this has consequences in terms of stalactite and stalagmite formations, and many other geological phenomena.



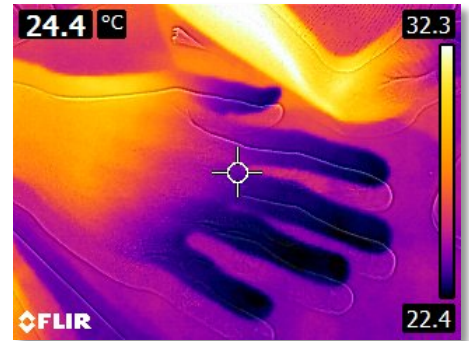
In BIO104, Heidi Leuszler has students measure the temperature of various types of lightbulbs (see image above). This opens the door to discuss many topics related to sustainability, efficiency, energy conversion, etc. Heidi and I both have also tested IR technology on our houses to detect heat loss and locate hidden structural components for home improvement projects.



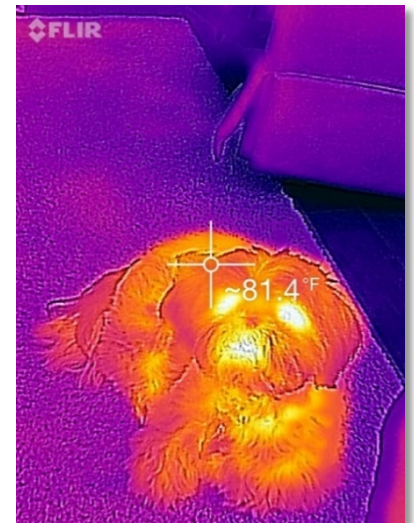
I am currently involved in an NSF project looking at ways to expand usage of infrared technology in science courses. There appears to be a burgeoning

awareness for the potential of this technology as a valuable pedagogical

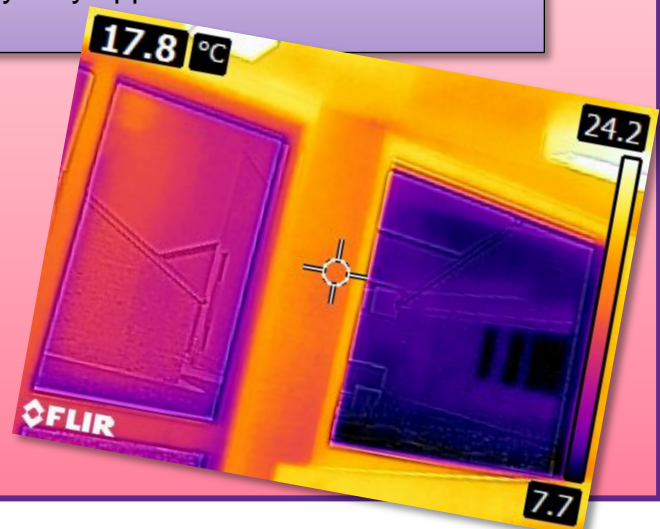
tool. You can even diagnose circulatory disorders in your students (see images of normal hand and student hand - true story). So don't be left out in the cold while all your colleagues start adopting IR in the classroom and laboratory!



And a fun picture of my dog. It appears all that fur is doing its job! Can you identify the breed?



**Mystery IR image:** These 2 windows represent technology from different eras. This picture was taken in the winter. Can you guess this location and why they appear different?



See page 23 for the answers to Dave's questions

## Department Initiatives

### A Case for the Display Case

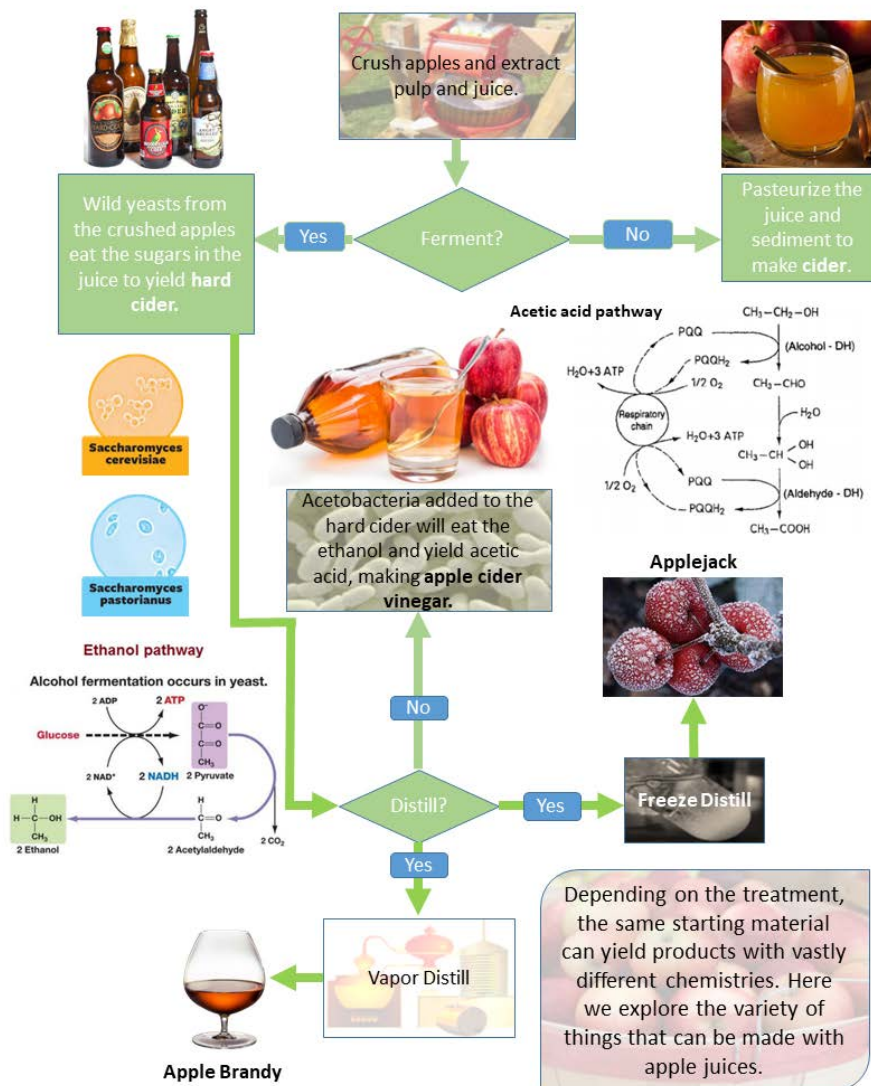
Written by Elizabeth Phillippi

If you haven't been passing by the Natural Sciences display case this past year, you've been missing out. The chemistry group maintains a rotating display in the case, updated every month or so. Most of the displays are seasonal, and often include interesting reactions or spotlight different aspects of chemistry in everyday life. The displays draw heavily on the work of Andy Brunning, a chemistry teacher and infographic artist ([www.compoundchem.com](http://www.compoundchem.com)), often including his graphics or aspects of them.

Past displays have included the stoichiometry of frozen desserts, the metal compounds used to color fireworks, a sampling of flavor compounds found in pumpkin spice, neurotransmitters and brain chemistry (just in time for Valentine's Day), and some silly displays like the recent science puns display and the winter Chemis-tree (how lovely are thy beakers).

The fall display looked at different products that can be manufactured from apples and the chemical processes that are responsible for them. Come visit us in the L-wing this month for our display on the Nobel Prize – the 2017 winners in chemistry, physics and medicine; metal composition of the medal itself and how to dissolve one in a pinch.

Have an idea for a display case? Let us know!



## Engaging Students Outside the Classroom



*Written by Erik Johnson*

Katrina Wefel joined me on her first trip to Yerkes Observatory! My attempts to see fall colors in southern Wisconsin when the astronomy club visits the area haven't gone so well. I think we need to go later in the fall to really notice the leaves. Unfortunately, I think that means we would also deal with worse weather. It wasn't so fortunate this time, since we had a downpour on the way up as well as around lunchtime. It made it harder for us to take pictures and to walk around town. At least I still got to show them the statue of Romeo, the Killer Elephant in Delavan! (See the photo of me with Romeo and another clown from May 2016).

The astronomy club is meeting on Thursdays at noon. It's the only time I can get the students into our classroom at a reasonable time of the day. On the bright side, we've had some more sunny days and have held solar observing in the cafeteria about once a month. The club visited the planetarium in November and got to see how to use the controls for the Carl Zeiss star machine. The students really like how the stars look on the classic system!

This spring, the club will take another trip to Fermilab. I hope we can find a date that will appeal to a lot of students. We'll organize more trips to the planetarium and a dark sky observing trips too.



## Engaging Students Outside the Classroom



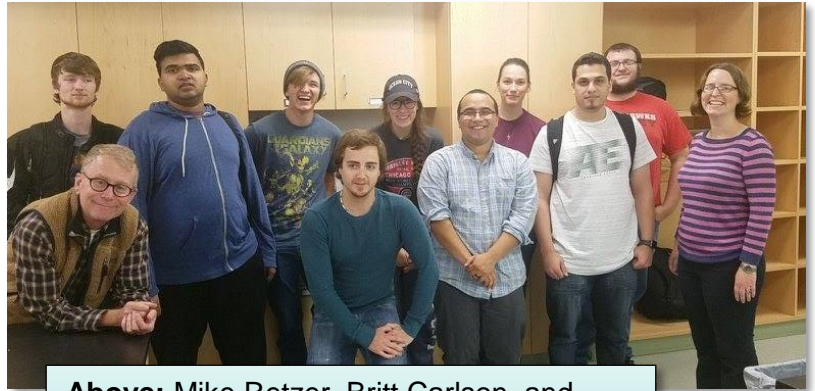
**Written by Mike Retzer**

This fall semester the Parkland Science Club (PSC) was active with special guests, outreach activities, and hands-on science activities. Special thanks to everyone offering extra credit for attending the meetings – this has proved a great way to get students in the door and get them involved. We would like to thank Dr. Jim Angel (State Climatologist), and Liz Sloffer, Nathan Madden and Elizabeth Davis (all UIUC graduate students) for speaking to PSC. The students especially liked to hear about the experiences of the graduate students. Ms. Davis also held a two workshop series on how to develop an effective resume!

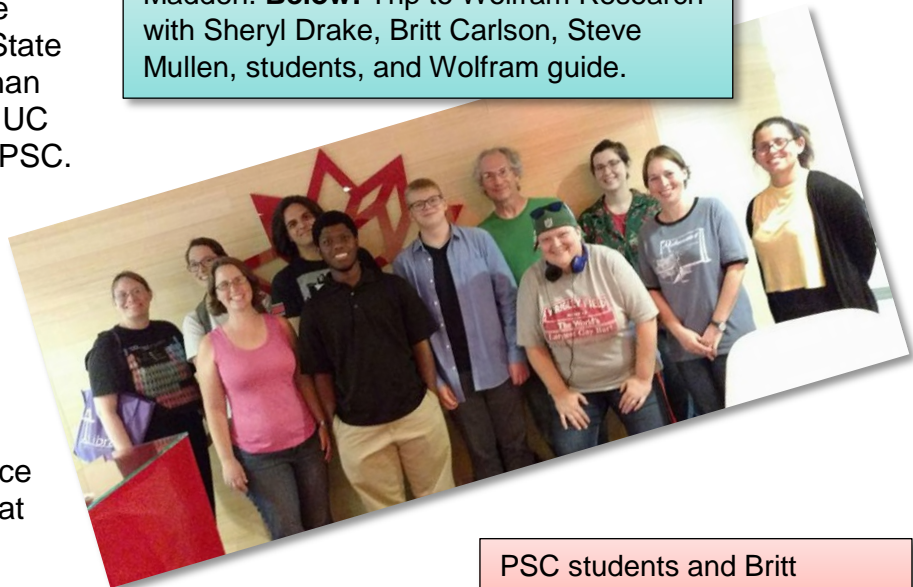
PSC also hosted a trip to Wolfram Research and held hands-on science activities on the Parkland campus, at the Deland Homecoming, and the Urbana Market at the Square (see Sheryl Drake's article for more on that). We also promoted the World of Science Lectures at Parkland's Staerkel Planetarium.

Are you missing the PSC widget on your Cobra pages? Let Britt or me know if you need any help integrating the widget into your Cobra pages.

Look for us on Facebook and for PSC news on the display cabinet near the microbiology lab for any updates. As always, thanks for all of your support and see you in the spring!



**Above:** Mike Retzer, Britt Carlson, and students with invited speaker, Nathan Madden. **Below:** Trip to Wolfram Research with Sheryl Drake, Britt Carlson, Steve Mullen, students, and Wolfram guide.



PSC students and Britt Carlson volunteer at the Deland Homecoming Festival



## Engaging Students Outside the Classroom

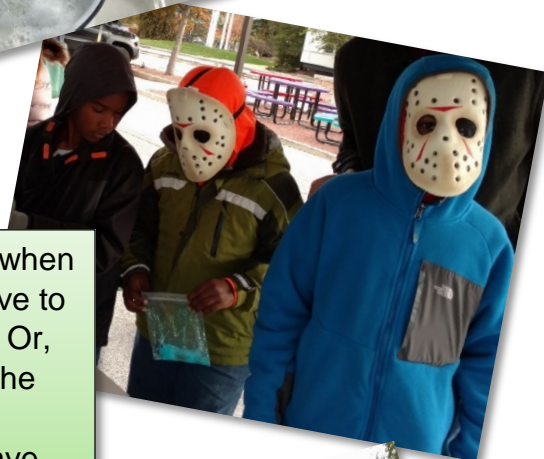
**We all know Science is COOL, but on Saturday October 28th, 2017, Science was COLD!**

*Written by Sheryl Drake*

The morning that the Parkland Science Club and Parkland Astronomy Club hosted the Science at the Market booth at the Urbana Farmer's Market called for a high temperature of 4°C (39°F). The weather was partly cloudy with more clouds than sun and we even had some sleet. The cold and dreary weather kept many away, but we did get to excite both the young and the young at heart about science. We created about 10 slime monsters (borax and glue polymers), made a handful of ghosts disappear (cornstarch based packing peanut dissolve in water), and just in case it wasn't cold enough, we made dry ice spooky bubbles.



The cold didn't stop this young scientist from playing with bubbles made with even colder dry ice (78.5°C or -109.3°F) and soap solution.



You know it is cold when young scientists have to wear Jason masks. Or, the fact that it was the weekend before Halloween might have played a role too...

Looks like the sun might be peeking out from behind the clouds while this young scientist makes his slime monster (while his mom & sister shiver in the background).



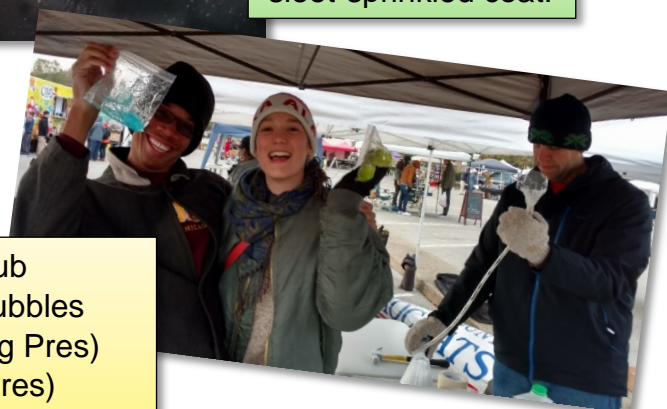
Erik Johnson's sleet-sprinkled coat.



Mila, daughter of PSC member Christina, loved the mini mole provided by the local ACS section in celebration of National Chemistry Week.



parkland  
**ASTRONOMY**  
club



Erik Johnson (Astronomy Club advisor) is making spooky bubbles while Alison (PSC's out-going Pres) and Ben (PSC's in-coming Pres) show off their slime monsters.



## Science in the Community

### Solar Eclipse

Written by Erik Johnson



The astronomy faculty all had an amazing time seeing the solar eclipse in August! Thanks to everyone in the department who met our students at their first class and showed the neat partial eclipse in our absence. For Heidi Bjerke, Katrina Wefel, Dave Leake, and me, it was our first total solar eclipse! We've all seen partial solar eclipses and total lunar eclipses before, but they were nothing like this. We saw the temperatures noticeably drop on an otherwise hot day, we saw the strange lighting conditions aside from the amusing crescent-shaped shadows, and right before totality, we saw shadow bands move over the area!

As for totality, my words will not convey the joy we all experienced. Seeing the corona without equipment was stunning. There were even more details visible in my binoculars, including the star Regulus, which was just to the left!



A few seconds before totality, someone noticed a point of light in the southwestern sky. I knew it was Venus immediately, but I had not anticipated seeing it before the Sun was completely covered. I spent a few precious seconds of totality trying to find other objects in the sky. I saw Jupiter in the east and used my laser pointer to help others find it. I was unable to find Mars or Mercury near the corona, nor could I find Sirius or the stars of Orion. I blame the clouds. However, I saw a star just north of due west, which Stellarium told me was likely Aldebaran. That was not one I expected to find.

After less than 160 seconds, the Moon stopped blocking the Sun. Unfortunately, I missed seeing Baily's beads and the diamond ring because I didn't want anyone to be misusing the eclipse glasses at any point. (You won't see anything during totality.) A few minutes after totality, we started sweating again. It was time to go home. It sounds like the return trip took a long time for anyone who didn't leave immediately. Getting the maximum possible duration of totality and a little time to collect ourselves was worth the six hours on the road.

The next total solar eclipse in the US is on 2024 April 8. This one goes through Dallas, Indianapolis, Cleveland, and Buffalo. Champaign will get 98%

coverage, but you must see that last 2%. Southern Illinois will get the eclipse again, but towns like Terre Haute are closer and have a longer duration. It's on a Monday, so I may set up a field trip from Parkland to western Indiana. The three minutes will be worth it.

## Campus Initiatives

### PDSF (Professional Development Subcommittee for Faculty) Updates

Written by Christina Beatty

In August, Dr. Ramage tasked PDSF and PDSS (PDS for Staff) with leading discussions on the **results** of the **Climate Survey** that is administered every 2 yrs or so. The data suggested that, in general, things were pretty good at Parkland through 2012. Then, some satisfaction started to decline, specifically in the areas of Communication, Workload and Resources, and Institutional Quality and Reputation. While we can hypothesize on why this happened, the main goal is to move forward and to improve the climate where it needs it, realizing there are a vast array of experiences and perceptions across the college. Here is a review of how PDSF has been involved in discussions on the Climate Survey results:

- Dr. Ramage hosted his Climate Survey Results session on Oct 20 received good feedback.
- Dr. Ramage visited several depts., including Nat. Sci. on Oct 13.
- The lunch with Dr. Elaine Shpungin on Nov 2 was well-received. Her expertise is in “restorative practices,” which is a process to help organizations with communication and conflict (small or large issues). She reminded us that the community-building base of the triangle (pictured) is crucial and if that is not foundational, dealing with misunderstandings or conflict is often unproductive.
  - 68% of attendees had a consistently positive response to the session whereas 8% had a consistently negative response. (The rest were mixed with some areas of positivity and some of negativity. I have the data if you want to see more).

- We will have a few more workshops with her coming up; one on **Dec. 15 at 8am** (sign up with Nancy Willamon – it will be nearly identical to the Nov 2 session), and a few more in Jan/Feb before we decide to do anything more substantial and longer term with her company should we choose that route.
- We are planning to host CETL discussions with in-house facilitators.



We have been pioneering a **Part-time Faculty Academy**, which gives a **\$500** stipend to support PT faculty participation in professional development (PD). So far, half of the funds are in the process of being distributed and many other PT faculty have a PD plan in place to be eligible for the PT Faculty Academy by the end of this semester. We are encouraging the PFTO to bargain this into their next contract since we've had such good response.

For **Wednesday, January 10**, during prep week, we are bringing in an outside speaker, **Dr. Regan Gurung**, a University of Wisconsin - Green Bay professor of Psychology and Human Development with expertise in evidence-based teaching practices who will be giving a key note, “Working Together to Cultivate Learning: Transcending Individual Differences, Inspiring Change.” He will also give a workshop titled, “Diversifying Your Teaching Tool Kit: Strategies and Tips.”

## Meetings

### NABT 2017: National Association of Biology Teachers in St. Louis

*Written by C. Britt Carlson*

I attended the NABT conference this November. Some of you might be thinking, why would chemistry faculty attend a biology education meeting? The reason is that NABT is a good forum to connect with other 2-yr and 4-yr college biology faculty about PRECS (see my other article for more details about our 1<sup>st</sup> summer of PRECS).

I presented a poster about the successes of the 1<sup>st</sup> summer of PRECS and also about the inter-institutional nature of PRECS and challenges of (and strategies for) this model.

Our poster was well-received and we had quite a few people stop by. We definitely were able to get the word out about PRECS and we're hoping this results in strong applications for Summer 2018 from students at CCs across the country.

This was my first time at an NABT conference and I wasn't sure what to expect – would the conference program be truly balanced among all the different types of teachers involved in NABT? What I found was that NABT was well-attended by teachers from middle school through universities. The 2-yr college section was vibrant and it was clear there was a tight community there. They even hosted a special lunch, which was a

great way to meet and get to know several 2-yr college biology faculty.

There was a big vendor hall – the folks from Anatomage passed along their hello! to Lori Garret. Importantly, there were several interesting talks that I attended. What intrigued me the most were the various ways that course-based undergraduate research is being implemented across the country. This is definitely something I want to investigate further. I'm already starting to brainstorm with Manny about what we can do with the Che101-Che102 labs.

Included in the conference was a Howard Hughes Medical Institute (HHMI) night at the movies with the famous evolutionary biologist, Sean Carroll (see photo). It was fun to meet him! There was also a fun talk by UIUC's May Berenbaum talking about how the bad science in science fiction movies can be used teach good science – it was pretty fun to think of how grasshoppers are unlikely to be able to become monster-sized due to issues of expanding surface area vs. volume.

Hanging out with Sean Carroll: Britt and her husband, Nate.



## Meetings

### ICCCA/ICCFA Conference

*Written by Christina Beatty*

On Thursday, November 16, I, along with 6 other faculty (Britt Carlson, Brian Nudleman, Adam Porter, Kendra McClure, Isabel Scarborough and Umeeta Sadarangani) went with Nancy Sutton to Springfield to the joint conference sponsored by the ICCCA (Illinois Council of Community College Administrators) and ICCFA (Illinois Community College Faculty Association, not to be confused with the International Cemetery, Cremation and Funeral Association, which is the first Google hit.) We presented on The Value of Applied Experiences in a Liberal Arts Curriculum. Britt discussed PRECS (see her article for more information) and I discussed using a mock crime scene as a theme in Sci 108 as ways to improve student attitudes using real-life scenarios.

In Sci 108, Essentials of Forensic Science, students learn about crime scene processing skills in the first few weeks. And then, shockingly, every semester, about week 4, something surprising happens – there is a CRIME, and not just anywhere, but IN OUR LAB! Can you believe it? ☺ Every semester, the same thing happens, the same week...really strange...anyway, I tell the students that the Champaign Police Department is overworked and would really appreciate it if my students could process the crime scene for them – that includes recording it (photos, notes,

sketch) and collecting evidence to be sent to the State lab. Students spend time (mostly carefully) doing just that.

We go on with the semester learning about Fingerprinting, Trace Evidence, Glass & Soil and about midway through the semester, I tell students that their help is needed again. The State Crime Lab is overworked, and they need Sci 108 students to examine the evidence that was collected earlier (along with some evidence collected from reference samples –i.e. suspects). Students spend a lab period analyzing this evidence and then write up a Midterm Report. This semester, I added a “Mini-Rough Draft” and “Peer Review” in the Discussion boards in Cobra and the Midterm Reports were definitely better. I highly recommend requiring a mini-rough draft for any sort of paper. It helped with the actual grading tremendously, and I have a marked increase in completion of the report and in student grades.

We continue on in the semester learning about blood typing, fire investigation, DNA etc. and then analyze the rest of the evidence. Students turn in a Final Report in Week 17, along with a reflection on the whole experience. Most say it was a positive experience, that it was fun and challenging. The negative feedback is usually geared along the lines of “I learned I’m not interested in working in a lab,” or “Crime Scene processing is very tedious”. I’d like to think that means I gave them a real life experience, which I suppose I’ll twist to be compliment??



Illinois Council of Community College Administrators



## Meetings

### Serving on an NSF review panel

*Written by C. Britt Carlson*

In August, I received an invitation from the National Science Foundation (NSF) to serve on a grant review panel for the REU (research experience for undergraduates) program. Since I am the co-PI on PRECS, an NSF REU (for more on how the first summer of PRECS went, see my other article), my NSF program officer reached out to me to represent the perspective of CC faculty on this review panel. I was honored and agreed to serve.

Here's a run-through of how grant review processes work. A RFP (request for proposals) is issued from the funding agency (ie. the NSF) and scientists from across the country submit proposals on a rolling basis, or in this case, by a specific date. These are then processed by the NSF (this seems to take a while, but this part is a black box to me), and then the proposals go to a review panel comprising faculty, administrators, industry scientists, and scientists at private/public research institutes. The NSF tries to balance reviewers based on geographical location, type of institution, diversity, and also stage of career. At the NSF, each proposal has three reviewers assigned to it – a primary (gives the initial presentation of the proposal), a secondary (fills in any holes), and a tertiary (can add more info/perspective, but is also the scribe of the panel summary). Most of the discussion is among these three reviewers, but the NSF program officers might ask questions and the rest of the panel might add their perspectives.

However, most reviewers only read their own assignments – it's really a lot to try to read them all. As a group of three, the reviewers give a recommendation for ranking the proposal. This recommendation is given a lot of weight, but in the end, the funding decision is made by the NSF. All submissions receive feedback in the form of individual reviewer comments and the panel summary.

I had a really great experience serving on the panel. It gave me an insight into the process that I had only been on the other end of in the past. I also saw how strongly each of our own backgrounds informs our perspectives. I did feel that I was representing all CCs, since I was the only reviewer on the panel from a CC, and that responsibility showed through in my comments. And I saw that scientists from industry or from research universities spotted concerns/strengths that I had not focused on. But, there was a lot of respect in the room and I felt that everyone's perspective was valued.



View from within the NSF building and my temporary ID card.

## Meetings

### The Great Teachers' Retreat

*Written by Fatemah Hermes*

The annual Illinois Great Teachers' Retreat (GTR) was held in scenic Allerton Park in Monticello, Illinois on Friday Sept. 15, 2017. Instructors from three Illinois community colleges – Parkland, Heartland and Richland – partook in the day-long events of the gathering.

Illinois GTR is part of the nation-wide Great Teachers' Movement which started in 1969 in Chicago, Illinois, and now has participants in over a dozen US states, as well as Canada. The purpose of the movement is to bring together higher education teachers from diverse disciplinary backgrounds to contemplate their teaching habits, and exchange resources and ideas. The Movement believes that teachers learn best collectively and from each other, and that diversity spurs a richness of creative solutions to potentially common problems. The movement also believes in simplicity. That's why there are no set agendas, manuals or protocols for the meetings. Instead, participants communicate with each other before and during the meeting to identify topics for discussion. The hope is that participants forge long-lasting connections, where they feel comfortable asking for and giving advice.

This year's Illinois GTR was made up of three small-group discussions interspersed with lunch, a general body meeting/presentation, and social time. In the first session, each group member shared a teaching innovation that they successfully used in their classroom,

while in the second session, we each described a persistent classroom problem and solicited solutions from the group. During these two meetings, we identified bigger issues to raise during the general body meeting. After a healthy salad and soup lunch, we regrouped to decide which of the big issues warrants further discussion. This was followed by small-group discussions of these issues. Social time was especially useful for newer teachers who got tips in a collegial environment from senior teachers about issues ranging from time- and stress-management, to maintaining a healthy work-life balance, to the best Italian food restaurants in town!

As a junior teacher participant in this year's retreat, I left feeling welcomed into the profession, and reassured that there is a huge support network of teaching professionals that I can tap into. I learned that the problems that I face are part of the normal developmental trajectory of teachers, and that great teachers are constantly striving to be even better teachers. I highly recommend that you keep your eyes open for the announcement of next year's GTR and that you participate if you're able to.



The scenic Allerton Park in Monticello, Illinois was the site of the 2017 annual Illinois Great Teachers' Retreat. Photo courtesy of Kona Jones, Richland CC.

## The Great Teachers' Retreat: photos



Illinois GTR kickoff icebreaker. Photo courtesy of Kona Jones, Richland CC.

Lunch and social time at Illinois 2017 GTR. Photo courtesy of Kona Jones, Richland CC



Location chart of small-group discussion topics at Illinois 2017 GTR. Photo courtesy of Kona Jones, Richland CC

## Special Programs

### PRECS: The first summer

Written by C. Britt Carlson

**PRECS** Phenotypic Plasticity  
Research Experience  
for Community College Students

Phew! PRECS just completed its first summer and it was a whirlwind! PRECS: Phenotypic Plasticity Research Experience for Community College Students is an NSF REU (National Science Foundation Research Experience for Undergraduates) is a Parkland-UIUC collaboration and supports a full-time paid summer research experience for CC biology students. I am the co-PI and program coordinator. This is a 3yr grant and is renewable.

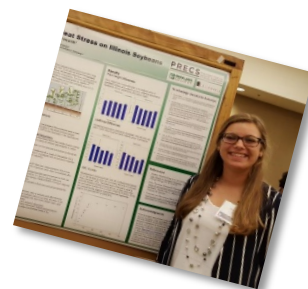
PRECS received 40 applications from across the country and we selected 10 students (the NSF-mandated cap). This included 3 Parkland students, 8 students from IL (2 from out of state), 5 1<sup>st</sup> generation college students, and 2 students from under-represented groups. The students were matched with a UIUC lab, including a faculty mentor and a research mentor (typically a grad. student or postdoc). The research projects were diverse (from soybean photosynthesis to honey bee behavior), but were all under the umbrella of phenotypic plasticity, the phenomenon of a single genotype resulting in multiple phenotypes, depending on the environment.

PRECS started out with a 7-day boot-camp at Parkland, where students participated in skills training (thanks to LeeAnne and Kena for your help with labs), lectures and presentations (ethics, research safety, statistics, genetics, etc), campus orientations, and 1:1 meetings with the research mentors, including the creation of a mentor-mentee contract.

After the boot-camp, the participants entered into the 8-wk research immersion portion of PRECS. They became integrated into their host labs, conducting novel

research projects. We met as a group 2-3x/wk for professional development lunches. These lunches included transfer-related programming, student technique presentations, and peer-feedback sessions on their research poster drafts.

The summer wrapped up with at the IL Summer Research Symposium at UIUC where PRECS participants presented their research posters. To see examples, visit: <http://spark.parkland.edu/precs/>



During this following Fall semester, the PRECS participants completed the requirements of the program by giving a presentation at their home CC (or a nearby CC, if the student has transferred). This requirement has several objectives: 1) give the students an opportunity to present their work orally, 2) help spread the word about PRECS, 3) educate the CC student community about undergraduate research experiences in general, and 4) demonstrate to CC students that an experience (or career) in research is something that is achievable, even for someone like them. Many students told me that it was really satisfying to talk to other CC students about their work and also to inspire new students to seek research opportunities. At Parkland, the World of Science Lecture Series at the Staerke Planetarium hosted 3 PRECS students. Many thanks to Dave Leake for hosting and to those who attended! This was a great experience for our students.

Overall, the first summer was a big success (see the next pages for some data) and we are so proud of the participants. Two students were even invited to return to their host labs next summer. I loved seeing how much growth can happen in a short amount of time in an intensive experience like this. The students started out being eager, yet nervous and intimidated, and ended up really owning their projects and some were even contributing to troubleshooting and designing experiments.



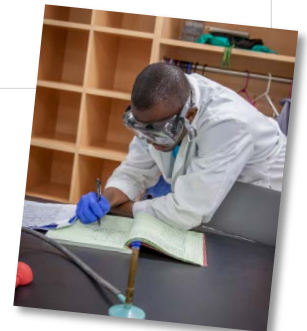
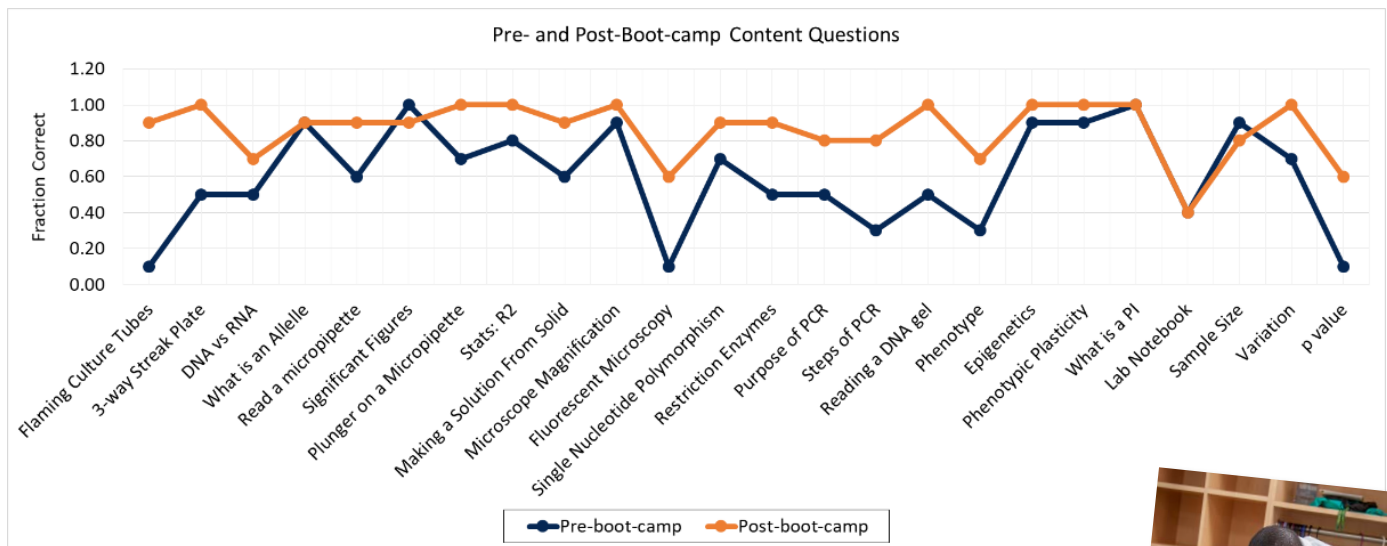


## PRECS: The first summer: data

So, the next question is – do the assessments reflect this growth that we observed? The answer is yes. But, let’s tease that out a bit and drill into the results a little bit. Disclaimer: n = 10, so no cool stats.

### Boot-camp results

We were able to see some qualitative increases in some content knowledge after the boot-camp. The post- results (orange) are higher than the pre- results (blue).



### Participant (mentee) attitude results

Overall, we saw increases in student attitudes about their ability to do research (see below). There were increases in students’ intentions to pursue a graduate education in science (not shown). We also saw increases in student confidence about being able to be successful as a scientist (shown below).

	1: not favorable	2: a little favorable	3: moderately favorable	4: favorable	5: greatly favorable	Mean	n
Please rate your overall mindset toward research <b>BEFORE</b> your most recent research experience	10.0%	50.0%	20.0%	0.0%	20.0%	2.7	10
Please rate your overall mindset toward research <b>AFTER</b> your most recent research experience	0.0%	0.0%	0.0%	80.0%	20.0%	4.2	10

How much did you <b>GAIN</b> in the following areas as a result of your most recent research experience?	1: no gains	2: a little gain	3: moderate gain	4: good gain	5: great gain	Mean	n
Confidence in my ability to contribute to science	0.0%	10.0%	10.0%	10.0%	70.0%	4.4	10
Confidence in my ability to do well in future science courses	0.0%	10.0%	10.0%	20.0%	60.0%	4.3	10

### Research mentor attitudes

We also surveyed the research mentors (the day-to-day mentors). We found that the research mentors also perceived growth in their mentees (see below). Interestingly, we added a question about the research mentor's perceptions of CC students and their ability to succeed in science. We saw that participating in PRECS helped to start chipping away at biases against CC students (see below).

	1: no ability	2: a little ability	3: moderate ability	4: good ability	5: great ability	Mean	n
Please rate your mentee's overall ability to think and work like a scientist <b>BEFORE</b> his or her most recent research experience	0.0%	77.8%	22.2%	0.0%	0.0%	2.2	9
Please rate your mentee's overall ability to think and work like a scientist <b>AFTER</b> his or her most recent research experience	0.0%	0.0%	33.30%	66.7%	0.0%	3.7	9

Now that you've completed your experience working with the PRECS program, look back on your time in the program and rank your opinion of whether you agree or disagree on the following questions.	1: strongly disagree	2: disagree	3: agree	4: strongly agree	Mean	n
<b>BEFORE</b> PRECS I felt that community college students were equally capable of conducting research as similarly staged students from a four-year university	0.0%	12.5%	50.0%	37.5%	3.3	8
<b>AFTER</b> PRECS I felt that community college students were equally capable of conducting research as similarly staged students from a four-year university	0.0%	0.0%	35.0%	75.0%	3.8	8



### Contact information

If you know a student who might be a good candidate for PRECS, please refer them to our website, <http://precs.igb.illinois.edu/>. There are some great videos there (thanks to PCTV!!), so please check it out. Applications for Summer 2018 **open on Jan 15, 2018 and close on March 15, 2018.**

If you have a good candidate for summer research, but maybe not for PRECS, there are some great resources out there. I highly recommend <http://pathwaystoscience.org/>. Of course, you can also refer students directly to me – I love talking to students about undergraduate research!

The first cohort of PRECS: 10 student participants, the two faculty PIs, and the graduate student assistant. All in our PRECS T-shirts (thanks to Cindy Smith in the Division Office for the shirts and photos!)

## *Honors in the Department*

### **New President-Elect of the Great Lakes Planetarium Association**

*Written by Waylena McCully*

Waylena McCully, Production Designer for our very own Staerkel Planetarium has been recently elected President-Elect of the Great Lakes Planetarium Association (GLPA). Her two-year term as President-Elect will begin in the spring, followed by two years as President and two years as Past-President.

Waylena has been an active member of the Great Lakes Planetarium Association (GLPA) for over 25 years. Over the years she has become known for development of budget-conscious production workflows using open source digital media software tools. She presents workshops at conferences to teach others how to create content these methods and encourages collaboration among colleagues. She was awarded rank of Fellow in 2002, and in 2014 received the GLPA Service Award.

Staerkel Planetarium and Parkland College are well-regarded within the planetarium profession. Over the years, we have hosted two large annual conferences and several smaller state meetings. Planetarium Director Dave Leake was elected President-Elect in 2009, and continued to serve on the Executive Committee after completing his final year as Past-President.

The Great Lakes Planetarium Association is the largest regional professional planetarium organization, with members from states surrounding the Great Lakes region and around the world.

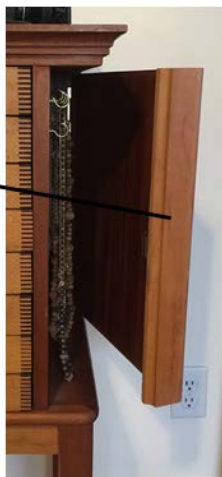


## Nat. Sci. Makers Corner

### Jewelry Armoire

*Written by Dave Wilson*

This is a jewelry armoire I made for my wife about 20 years ago. I used 2 species of contrasting wood. Most of the structure is mahogany, whereas the aprons and the fronts of the drawers and side doors are birds-eye maple. The legs and aprons have mortise and tenon joinery. For the drawers I decorated them by joining with finger joints (i.e. box joints). The darker mahogany sides of the drawers come through the lighter maple for a nice contrast. Finger joints are a little finicky because the spacing between the fingers must be exactly the same as the size of the fingers themselves – and the smaller the fingers, the more challenging that is! It took a lot of trial and error to get it perfect. The finish is just a few coats of tung oil which highlights the wood's natural character without that glossy look.



### End tables and pillow

*Written by Britt Carlson*

These are some of the projects I completed in the last few years. The first is a pillow I made for the new SciCommons last year. I tried to incorporate all of the Nat. Sci. areas into the design. It lasted longer than I would have guessed, but in the end, it was stolen. The other two are end tables that I created using some rounds of an ash tree from my country home. My husband used a chain saw to cut the tree into pieces, I cured the pieces for at least a year, and then used an electric plane and sander to smooth the surfaces. I then just added polyurethane and some legs and voila! End tables!

**What is the Nat. Sci. Makers Corner?** During a recent conversation in the SciCommons, some faculty were discussing how we have many creative people in our department. This led to our new newsletter feature: Nat. Sci. Makers Corner -- a showcase for some of our creative endeavors. If you have submissions for next semester, let Britt know!

## *From the Planetarium*

**William M. Staerkel**

**Planetarium News**

*Written by Dave Leake*

### **“WORLD OF SCIENCE” SERIES CONTINUES . . .**

The planetarium will bring in more speakers in the spring semester, starting in February. Admission is \$2 at the door and classes are invited. We will continue to provide a sign-in sheet for students attending for extra credit. We appreciate you making this opportunity available to your classes.

#### **February 2**

**"Demystifying the Science of Global Climate Change"** Why and how does Earth's climate change? Can humans influence Earth's climate? In this talk, Dr. Eric Snodgrass (UIUC Atmospheric Sciences) will unravel the science of climate change in practical terms and answer these questions and more. He will discuss what we know and don't know about Earth's climate and why many are skeptical of the science while we look at the evidence and the causes of the recent observed changes in our climate. Come prepared to learn science behind Earth's changing climate!

#### **March 2**

**“Using Gene Profiling to Fight Cancer”** Dr. Sarah Spinella, UIUC assistant professor in Comparative Biosciences, will discuss specific changes in cancer-associated genes that can either be specifically targeted with a drug or that indicate that a tumor may be more sensitive to one treatment over another.

#### **March 30 - special edition!**

**"Chasing Tornadoes!"** Meteorologist Andrew Pritchard returns to the dome just as severe weather season is about to begin to talk about tornadoes and severe thunderstorms. And he promises to bring some hair-raising video!

#### **April 6**

**"Extending Plate Tectonics into the Earth's Deep Interior Using Supercomputers"** Dr. Lijun Liu, UIUC Associate Professor in the Department of Geology will discuss how high-performance computers could help us better understand what's going on hundreds to thousands of kilometers down inside the planet Earth, and how these internal processes influence the surface such as the formation of mountains, sedimentary basins, super-volcanoes, and major river systems.

### **MIGHT YOUR CLASS USE THE PLANETARIUM?**

Currently AST 101 and 102, ESC 101 and 102, BIO 107, THE 105 and PSY 101 use the planetarium as part of their class. Programs were assembled to support instruction in each of these classes. Might your class be next? With its digital projection system, the planetarium isn't just for astronomy anymore! Email us at [planetarium@parkland.edu](mailto:planetarium@parkland.edu) to bat around a few ideas. There is no additional charge for Parkland credit classes.



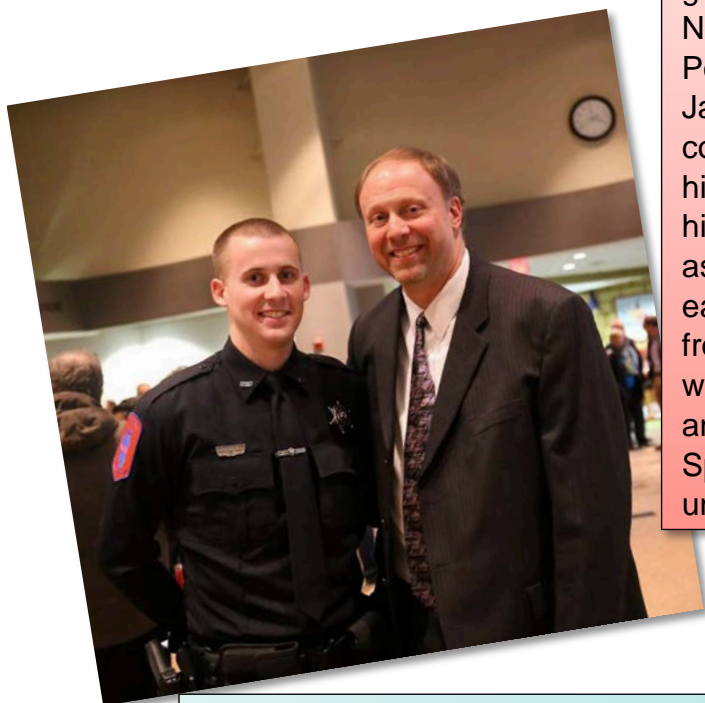
## William M. Staerke Planetarium News

### NEW SHOW ON EXOPLANETS COMING IN THE SPRING

The Staerke Planetarium will feature our holiday program, “Season of Light,” until December 16. Beginning January 19, we’ll run a Native American program called “Spirits From the Sky, Thunder on the Land,” to be followed by “Skywatchers of Africa” for February. In March, they’ll open a new show from the European Southern Observatory called “Out There: The Quest for Extrasolar Planets.” For thousands of years, humanity thought that Earth was the center of the universe. Thanks to our curiosity, imagination, and the urge to explore we now know that planets like ours are nothing are nothing special in the cosmos. The Sun is just one ordinary star among hundreds of billions in our galaxy. With powerful telescopes, we search the skies for other worlds. What we have found so far has surpassed even the wildest expectations of scientists as well as science fiction authors. Most stars have planets – it turns out there are more common than we thought! A huge diversity of worlds is out there, just waiting to be discovered. But the big question remains – is there other life out there? “Out There” opens March 2 at 8pm.



## Snapshots in Time

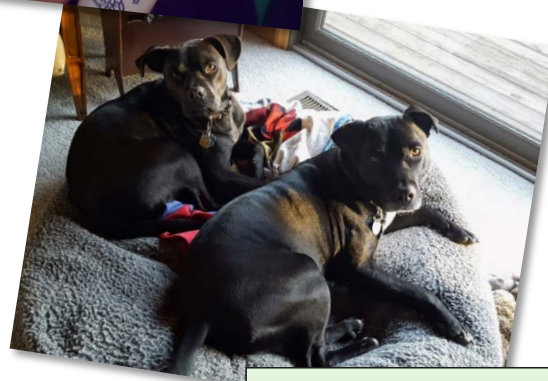


Planetarium director Dave Leake's son, Daniel, graduated from the Police Training Institute on November 16. Dan joined the University of Illinois Police Department as a telecommunicator in January 2015. This year, he earned two commendation awards as a telecommunicator for his exceptional and compassionate work tied to a hit-and-run accident and a reported sexual assault. Officer Leake grew up in Champaign, earned his bachelor's degree in criminal justice from Colorado State University and is now working toward a master's degree in legal studies and criminal justice at the University of Illinois Springfield. He'll begin field training work with the university immediately.

Sheryl Drake and Britt Carlson attended a "Chemistry-in-a-Box" event hosted by the local East Central IL chapter of the American Chemical Society. The focus of the event was "Chemistry Rocks!" They learned more about geochemistry and also met some chemists from UIUC.



John Moore with his wife, Andrea. Plus the pack: Luke, Dia, Ava, Sagan, Dean, and Bentley



Britt's two dogs, looking adorable (always): Charva (our new addition, named after a Frank Zaapa song: adopted June 2017) and Otto (adopted June 2016).

Answers to Dave's IR camera-related questions (pg 4): Dog breed: shih tzu. Windows: Those windows are located directly outside L136. The warmer one on the left is a newer double-pane window. The colder one on the right is an old single-pane window (possibly original to the college???)

## *Nat. Sci. in Perspective*

### **Reflections on the History of the Natural Sciences Department (Part I)**

*Written by Rich Blazier*

#### **Introduction**

A while back, I was visiting with Scott, and for some reason, we got to talking about the early years at Parkland and “how things used to be” (I probably brought it up). As a matter of fact, upon reflection, I’m pretty sure I was lamenting the lack of departmental memory and how someone should do something about it. Scott, being the astute leader he is, immediately suggested I write an article for the newsletter reflecting on the history of our department. This was not my intent, but I had no choice after my lamentations other than to agree.

So, here I sit at my computer ready to review in my mind how it all began, and make a few comments about my almost 45 years of being associated with Parkland and my 36 years as a biology faculty member.

My apologies upfront to those of you in chemistry, physics, astronomy and earth sciences. This first installment is mostly about the biology area. I’ll get to the actual Natural History Department (and your role) in a later installment. And yes, there will need to be multiple installments.....it’s 36 years we’re talking about here folks!

These are my reflections and memories. As so often happens, memories sometimes get jumbled. There’s actually sound research to suggest that memories are not stored as a whole but in pieces and maybe even in different parts of the brain. When remembering, we reconstruct the memory by bringing those pieces back together, unfortunately not always correctly. I hope I haven’t made any major errors but if any of you detect any....don’t tell me! That will only

confuse me more. With that warning in mind, let’s begin.

#### **The Early Years**

The period of the late 60’s through the early 70’s was a time of explosive growth for community colleges in the State of Illinois. The State actually had money back then (really.. it did) and was encouraging the establishment of community colleges as a means to increase access to higher education for career, as well as traditional transfer, students. Most of the Illinois community colleges in existence today were founded during that time. It was not unusual for upward of five or more colleges to open their doors in a single year.

Parkland was no exception. It opened its doors to students in the fall of 1967. During that year, there were two full-time biology faculty members, Bob Owens (who was also the chair) and Carolyn Ogren. After that first year, Carolyn left (to return a few years later). The second year saw a considerable increase in students, which led to the need to hire many more faculty.

In the spring of 1968, I was a first year graduate student at the University of Illinois working on my master’s in the teaching of biology. I had a teaching assistantship (TA) working for Dr. George Kieffer who, in a most unusual occurrence for the U of I, was hired specifically to revise and improve the curriculum of the Division of General Studies (DGS) biology, a two semester course for non-science majors. George had a whole year to develop the new course and he chose a new system of instruction called audio-tutorial (more about that later). The other DGS Bio TAs and I were heavily involved in helping him set up the new course, scheduled to start in the fall of 1968. George became one of my mentors.

Meanwhile, I decided it would be a good idea if I sought a full-time teaching job (in case you’re wondering why, look at the date and think about it). I heard there was a new type of educational establishment called a community college opening in C-U and



## Reflections on the History of the Natural Sciences Department

thought I'd check it out. I had no idea what a community college was but understood it to be devoted to teaching...perfect!

I went to talk to Bob Owens and found out they were hiring biology faculty...a lot of them. Four had already been hired and they were looking for one more. And not only that – the bio courses were going to be using audio tutorial instructional methods. I was made for this job!

And then the hammer fell. The minimum requirement was a master's degree and obviously I didn't have mine yet. It didn't look good.

Bob must have seen the disappointment in my face (or maybe he was desperate to get that last faculty member) because he paused for a bit and then made me the following offer. Parkland would hire me as a full-time faculty member with all of the rights and responsibilities of all of the rest of the faculty. In addition, I would monitor the bio study labs four nights a week (they were open until 10PM) AND finish up my master's by the start of the '69-'70 school year. Because I didn't yet have my master's, I would be paid less (starting salary for someone with a master's and no teaching experience was \$8000...I was paid \$7800). I took the job!

So, in the fall of 1968, I joined the biology faculty along with four others (Chuck Beetz, Earl Creutzburg, Clarence "Bud" Moore, and Sue Spicer). Three of us spent the rest of our careers at Parkland. And, we were YOUNG! Earl and I were 23 and if I remember correctly, the oldest of the group was in their late 20's. Although Earl and I had no teaching experience other than as TAs, we all had one thing in common – we were excited about teaching. Most of us (maybe all) were trained to be teachers.

There was no central campus back then. Classrooms were scattered all over town.

The biology classes were in an old supermarket on Springfield Avenue near the corner of Springfield and Mattis. That building housed not only biology, but also dental hygiene. Chemistry and art were also in the mix. Later, an addition was built that housed nursing and something else which I can't remember (apparently that piece cannot be retrieved).

When the supermarket building was remodeled for classroom use, and because it had high ceilings, the walls only went up about 7 ft. Therefore, the classrooms had no real ceilings which meant you could hear what was going on in the next room if you listened carefully. Sometimes, you didn't even have to listen carefully. There is no way to operate a dental drill quietly, which meant when dental classes were in session, other classroom work was occasionally interrupted by that lovely high pitched whine we all know and love.

The faculty were housed in one large room along with our secretary. Our desks were often placed in pairs such that you would be looking across your desk right at someone at their desk who was also looking straight at you. The room hummed with conversations, the tip-tapping of a typewriter, and occasionally that dental drill. It was great for getting to know your colleagues, maybe not so much for quiet concentration.

Starting times for classes were staggered to allow time for students to get from one class to the next, which might be located in some other part of town. I believe we started classes on the half hour, other classes at other locations started on the hour, or at :15 or :45, depending on location.



## Reflections on the History of the Natural Sciences Department

I've often thought that the five of us along with a few others who came on board during the next few years (Vic Cox, Mike Postula, and Alice Pfeffer) had a once in a lifetime opportunity. We were starting a new college basically from scratch. We were not only able to decide what to teach but also how we wanted to teach it. There was no history and very little precedent to guide us. On top of that, we got to help plan a brand new campus. It was exhilarating!

The college was organized by divisions, each one of which usually included a mix of career and transfer programs and courses. The Life Sciences Division included Biology and Health Professions which in those days was pretty much Nursing, Dental Hygiene and Dental Assisting. Chemistry and Physics (and later Astronomy) were in the Math and Physical Sciences Division. What was later to become Earth Sciences was listed under Geography and was housed, I believe, in the Social Sciences Division.

Each Division had a chair and each program area had either a program director (career programs) or a lead instructor (transfer programs).

The new campus reflected this organization. Originally there were four wings. L (Life Sciences), M (Math and Physical Sciences) B (Business and Agriculture) and C (Communications). Those designations remain to this day even as others were added as the campus grew.

Bob Owens, the Life Sciences Division Chair, spent a great deal of his time those first few years working with the Health Professions faculty as they added new courses and programs and faced accreditation from their respective accrediting agencies.

That left us biology folks to do pretty much what we wanted. Here's how it played out.

### Next – Audio Tutorial and Mastery Learning or “why did those old bio labs not look like real labs?”

#### Audio-Tutorial Instruction

We all agreed to continue to use audio-tutorial instruction (A-T). After all, it was already in place and was being supported by our Division Chair. The recognized leader (and I believe the developer) of the approach was Dr. Sam Postlethwait at Purdue University. Soon after the five of us started at Parkland, we took a bio faculty field trip to visit Dr. Postlethwait's lab and pick his brain. Nothing beats going to the source for timely and much needed information.



A-T instruction was a self-paced approach that used audio tapes to guide students through a series of activities and assignments. Faculty operated as individual tutors to students when they had questions and helped them with lab work. The “labs” were open all day and often into the night so students could use them as they wished. The lab rooms contained a number booths that housed the tape recorders for individual student use as well as materials for that week's lab. The lab rooms were always monitored by instructional personnel. At Parkland in those early years, lab monitoring was a large part of faculty load. Eventually, part-time faculty were also hired to help monitor the labs (lab monitors).

The instructional material was broken down into weekly units called “modules.” The modules included objectives so students knew what was required of them for tests, reading assignments, and other assignments. Materials for each lab were set up at the beginning of each week and students did lab work at their own pace within that week's period of time.

## Reflections on the History of the Natural Sciences Department

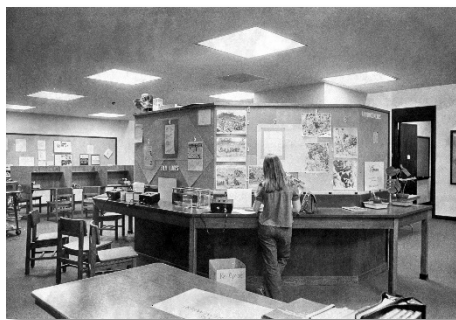
A-T had its own set of acronyms. Once a week, students would meet in small groups for discussions called SAS (small assembly session). SAS times were also used for oral evaluations during which a group of students would take turns answering questions posed by the instructor. After each student answered, other students had the opportunity to comment on the answer. Students were awarded points for how they answered the instructor's question as well as how they responded to questions by other students. However, it could get a bit cutthroat and was soon abandoned by us.

Every so often the students taking the course would all meet together (often to take a major test) in what was called GAS (general assembly session). We used one of the movie theaters in downtown Champaign for GAS.

Originally, we followed Sam Postlethwaite's approach close to how he envisioned it, but it wasn't too long before some major modifications were made.

### Enter Mastery Learning

Sometime during those early years when we were still at the Springfield/Mattis location, I attended a conference during which I went to a session on something called Personalized System of Instruction (PSI). The concept of PSI was to individualize (personalize) instruction as much as possible. As I remember, there were lots of variations of PSI, but most involved some sort of self-paced instruction. PSI was popular in the early 70's and even had its own journal for a time. One type of PSI intrigued me. It was called Mastery Learning.



The basic argument underlying mastery learning was this: given enough time (and proper support), upwards of 95% of all students could master virtually any subject matter normally taught in a course. To make mastery learning work, you had to figure out a way to allow students to have enough time to master the material. This would require a significant change in the way we looked at learning.

In the past, and to this day, when students pay tuition they are "buying a course" whether it's taught for 16, 8, 4 weeks or some other time period. When that time is up you get a grade (which might include an "F" or "W"). True mastery learning proposed that when you pay tuition you are buying a set amount of time only. When the time is up, if you are not finished with the course, then you can buy more time in order to finish. If you finish early, you could move on to the next unit of study, or maybe even a new course. Mastery Learning in its purest form is a completely self-paced method of instruction.

I was intrigued with the concept and brought it back to my colleagues. It seemed to fit with a lot of what we were doing with A-T instruction. As I remember, we discussed it in a series of meetings eventually arriving at the conclusion to adopt a modified version.

I won't go into the details of how we physically set it up (that would take another whole article), but I do want to point out how that decision affected the development of a number of things from the design of our bio labs on the new campus to the use of lab monitors and objectives, and finally, to the development of the Natural Sciences Testing Center.

### Design of Campus Biology Labs

For those of you who remember what the old bio labs looked like, you will immediately recognize they were designed for the A-T and Mastery Learning approach.

## Reflections on the History of the Natural Sciences Department

The small rooms at the back of the labs were for SAS and, later, for oral evaluations. They weren't meant as regular classrooms, although they were used as such later on (and actually helped keep class sizes down). Before they were remodeled, the rooms could barely hold 20 students.

The main part of the rooms housed the booths students used for independent study and to listen to audio tapes. Counter space for students to conduct labs and read various visual displays was also provided. This was usually in the center of the room for double labs and along the walls in single labs. That's why the rooms were so open when the booths were later removed.

### Testing Center

Self-paced instruction demanded a place where students could take tests when they were ready and also retake tests if needed. Our first testing center was at the Springfield/Mattis building. We set up chairs out in the hall (there was no other space available) and hired a retired librarian to run it. It was not ideal but our librarian ran a tight ship and cheating never seemed to be much of a problem. We needed to make multiple versions of any test and that may have helped. Students never knew what version they were going to get. In addition, because of the use of objectives, a lot of the guesswork ("are we going to be tested on that?") was taken out of the equation. Students came to the test better prepared.

Even after moving away from mastery learning, remnants still remained for a long time (including the testing center itself and retaking quizzes).

We found a room for the testing center when the campus opened (it had moved around a lot over the years). Our testing center was in use many years before the college established its assessment center.

### Objectives

The use of objectives to inform students what was expected of them remained with many of our courses long after we phased out major portions of mastery learning. The use of objectives was critical to Mastery Learning and it just made sense. I've never understood why some teachers seem reluctant to tell their students what it is they want them to know or do. Knowing what competencies we expect not only helps the students get organized, but also helps the teacher when it comes time to formulate tools to evaluate student learning.



### Lab Monitors

At one time the bio labs all had at least one lab monitor. Lab monitors were important to Mastery Learning and they helped students with questions and went over quizzes with them long after many courses moved away from Mastery Learning.

Eventually, and for a number of reasons, our bio courses shifted away from Mastery Learning (although most kept at least some remnants such as repeating quizzes) and back to a more traditional format. In retrospect, we were way ahead of our time. Modern technology would make this approach much easier to master (pardon the pun). To this day, I remain an advocate of self-paced instruction, the use of instructional objectives, and oral evaluations.

It is encouraging to see Mastery Learning under the new name of "competency based instruction" making a comeback at least at the high school level.

**Next – Reorganization!! and the Birth of the Natural Sciences Department – *Look for this in the Spring 2018 Newsletter!***

SEPT. 22, 1969



Biology with a personality touch.

# Blazier Changes Biology Instruction

BLAZIER INTERVIEWED  
by JIM MICHELETTI

When I took high school biology, I remembered the comments on the course--interesting as it was--from my fellow classmates. Something like this: "Yawn." "Ho-hum" Everybody staring at the clock.

Traditional biology. Taught from a text. Facts. Useless facts. Who cares?

Not that it hasn't changed. Cells are still the same. Photosynthesis in action. The ecology of the environment. All the same.

Just useless facts that didn't mean anything, unless of course you were a biology major and you enjoyed poking your nose into all this material.

It isn't like that here. Richard Blazier, biology instructor, has changed all that. The facts are still the same, but the manner of instruction has been changed.

Look at your schedule. Class is two times a week. The rest of the time you spend in the lab completing your homework assigned to you on Monday. You turn the homework in on Friday and take a quiz.

No lectures. All material is programmed using tapes and visual aids such as outside reading material. All learning is done on your own time provided it is in by Friday.

Different, isn't it? No teachers, just a lab monitor that is there if you need him.

Blazier calls this system the "auto-tutorial approach"--with

a sort of "personality touch." To be sure, a student won't get all the material available in class, but what is there is important.

But the facts you learn will mean something. Take air pollution for example. Blazier comments that this is relevant. When he teaches about air pollution, he calls in the biological facts as he needs them if they are important to the topic--anything else is disregarded.

In class, students talk about air pollution and to understand it, they learn the facts that go with it. Nothing more.

Blazier likes this system, says it's a hell of a lot better than the biology courses he was taught. He's very excited about the program and foresees big results in the future.

Blazier himself is a quiet person with extreme dedication to his work. He has a master's degree in the teaching of the biological sciences from the U of T, and he also student taught there. Last year was his first at Parkland.

But he isn't all plants and animals and cells and aquariums. He skis, takes nature pictures, likes classical and modern music -- even played clarinet at one time.

He prefers apache ties and bell-bottoms and even a well-groomed fu manchu moustache.

A young, politically-minded person, he also campaigned for McCarthy in the 1968 election in Wisconsin and Indiana.

## A BLAST FROM THE PAST!

Many thanks to Cheri Cameron for these wonderful photos from the Parkland archives!