



Natural Science Department

December 2018

## Greetings from the Department Chair

Thank you Natural Science faculty and staff for all you do to help students succeed and for your outstanding job as a collective unit!

### Recognitions

**Congratulations to Amy Nicely on her new job as a full time chemistry and forensic science instructor at DACC!**

**Congratulations to Kena Chapman on winning the Kudos award in November and for breaking the record of number of Kudos nominations.**

### Important Dates

All Faculty Coffee and Welcome on Jan 8th from 8:30am to 11:00am

Department Meeting on Jan 8th at 2pm at the planetarium

Natural Sciences Assessment Meeting Jan 9th at 1:00pm (X223)

Professional Development Day is on Feb 24th at Crystal Lake

### Content Highlights

#### Delicious Holiday Recipes

*Dave's No-Bake Cheesecake*

*Chelsea's Lace Cookies*

*Sheryl's Mulled Cider*

*Puerto Rican Holiday Treats*

*Coquito*

*Tembleque*

*Arroz con Dulce*

*Polvorones*



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## Letter from the chair, by Scott Siechen

The Fall 2018 semester has been a remarkable one for the Natural Sciences Department in a number of ways. While challenges continue (enrollment continues to decline, legislative and administrative requirements shift constantly, the swan-song of valued colleagues and, for me personally, a return to the classroom) we have met those challenges head-on. As a department we typically approach these challenges as opportunities further engagement in the process of teaching and learning. I have been continually astounded to observe as you, as a department, have achieved victories in spite, or because, of these challenges.

Even with the continued decline in enrollments, with support from the College we continue to posture ourselves to increase our service to the community in profound and exciting ways. Surely the clearest example of this is the hiring of Chelsea Lloyd as our new Full Time Faculty colleague. As you'll see later in the Newsletter working with and getting to know Chelsea has been a tremendous experience. We've also added three Part Time Faculty members to our ranks; David Gay, Ricardo Covarrubias and Kaitlin (Katie) Buckley, with Joe Mirabelli stepping in as a substitute physics instructor as needed. Each of these new colleagues has been a valued addition to our team. Welcome to all of you! In addition to new co-workers, we have continued working to add classrooms and to upgrade our teaching spaces. With new tables and chairs in several classrooms and a new chemistry teaching space (M-233) on the horizon we are well positioned to deliver our classes in ways that are best suited to the modern learning environment. Furthermore, the College has committed to helping improve safety and teaching efficiency in the chemistry laboratory areas. The amount of funds committed have not yet been finalized but we will begin discussions of prioritization and what can be accomplished in the new year. While much of this is a work in progress we will end up providing a better experience to our students.

I expect Dual Credit to continue its trend of growing as a part of how Parkland fulfills its mission. Newly passed legislation virtually guarantees that we will be having more Parkland classes taught to high school students. This presents us with a growing opportunity to enlighten a new generation of students as to the excellent educational opportunities Parkland has to offer. Efforts such as the CSI experience and our involvement in the upcoming Early Transfer Academy (ETA) are classic examples of how we as a department are turning this challenge into a great opportunity for both our young students and our college. The college recently had a visit from the Occupational Safety and Health Administration (OSHA). Because of your fine efforts, and particularly those of Kena Chapman, Laura Sonnichsen, LeeAnne Byers and the Safety Committee, the Natural Sciences Department came through as a shining example for the College. Because of our ongoing efforts in training and updating our safety policies no issues with our department were even raised, so far as I've heard.

The departure of Carl Lorenz as a Full Time physics instructor and Amy Nicely (Part Time, chemistry) from our ranks will pose a significant challenge to our Department. Carl's long tenure at Parkland has been one marked by his commitment to excellence and service to his students, the Department and the College. He will continue that legacy even in retirement. Thank you so much Carl. Amy's dedication to teaching is exemplified in her hard work to bring the Regional Science Olympiad to Parkland's campus for the past several years. While many of us contributed to this effort, Amy always took the lion's share of the responsibility and the work for enacting this amazing competition on our campus. Amy, I'm confident that I speak for all of us when I say that we are sincerely happy for you to have your new position and all that entails. It is certainly well deserved and we sincerely wish you all the best. However, even these challenges to our department come with new opportunities. I am sincerely gratified that Carl plans to continue working with us as a part time faculty member. In addition, the job opening for a new Full Time Physics Faculty member has been posted and the search committee has begun its work. We look forward to an outstanding and diverse candidate pool and to the hiring of a new colleague. Once again, because of the outstanding professionals in our College and Department, we are searching to find new opportunities from the challenges facing us.

My return to the classroom nicely follows the theme of challenges faced and great rewards realized. While preparing for lectures & labs and grading papers meant that I often had more on my agenda than was comfortable (sincere apologies to any of you with whom I was "short" or impatient this semester!) the rewards were profound. My students were all truly engaged and learned a great deal. It was great to be reminded how much work teaching is (who knew?) but also how exciting it is to watch a new understanding of the world dawn in someone's eyes. We are all extremely fortunate to be daily engaged in that enterprise. I remain deeply honored to continue in my role in supporting your excellence in this field.

As always, thank you for your dedication and professionalism; it is frequently noticed and often commented upon. Sincerely wishing you and yours all the best for this Holiday Season and a very happy New Year. With deep gratitude, affection and respect,

Scott



## Let's see how much you know about Carl...

Carl's hometown

- A. Indianapolis
- B. Chicago
- C. Saint Louis
- D. Madison

Carl's Alma Matter

- A. IIT
- B. MIT
- C. UIUC
- D. UCSD

Favorite team

- A. Colts
- B. Indians
- C. Cardinals
- D. Cubs

How many years have Carl taught at Parkland?

- A. 28 years
- B. 30 years
- C. 32 years
- D. 26 years

What was Carl's PhD subject?

- A. Nuclear physics
- B. Physics education
- C. Astrophysics
- D. Geophysics

### Carl Lorenz by Curtis Hoaf

This is Carl's last semester at Parkland as a full-time faculty member. While I am happy for Carl and this new chapter in his life, I will greatly miss having him as a colleague and even more as an office mate. Carl and I have shared an office for the last 18 years; my entire time here at Parkland. Not only has Carl been involved in the entirety of my career, he has been involved in a significant portion of my life. As an instructor, Carl has been consistently providing the quality and rigor necessary for students to succeed in Engineering. He choose to teach Physics 142 semester after semester because it is the course that proves to be the most challenging to students and contains many difficult foundational topics important to success in future courses. I know a few of Carl's former students personally and they have the highest respect and praise for him as an instructor. What an amazing legacy he has as an instructor.

Although teaching is the largest portion of our responsibilities as full-time Faculty, it is not the only part. I remember what Rich Blazier said to our committee the first time I was on a full time faculty search. He said: "Remember you are also hiring a colleague that you have to work with for a long time." I was not on the committee responsible for hiring Carl, but I could not have picked a better colleague. I have thoroughly enjoyed sharing an office with Carl for the last 18 years. We have shared conversations on topics covering all manner of things. Sometimes I think back and wonder how we ever ended up on a particular topic. I was 26 years old when I started teaching at Parkland. I realize now that I didn't know near as much as I thought I did back then. But Carl never treated me like was I was younger, which I was, less wise, which I was or less experienced, which I was. I have loved the last 18 years at Parkland and much of that has to do with Carl. Although he is retiring at the end of this semester, Carl will be around next semester (and I hope beyond) teaching part time. If you have not had the opportunity to get to know him well, I encourage you to do so. Otherwise, you will have missed a great opportunity.

## Kudos Winner — Kena Chapman, *by Sheryl Drake*

Kena Chapman does amazing things for chemistry and more. She bends over backwards to make all the chem labs come off without a hitch in the 3 chem labs and the space we borrow from biology.

CHE 106 had a lab activity that kept giving unclear results, a great frustration for students, she researched and experimented and found a way to make the experiment more successful for students.

CHE 102 struggled finding an organic chemistry lab that involved chromatography and had some sort of agricultural relevance. Kena spent hours during summer and over a few semester optimizing a column chromatography procedure for the separation of pigments in spinach and tomato paste. Currently the lab created by Kena is use in CHE102 as their introduction to organic chemistry lab.

Kena, also helps Bio & Chem students with their special projects. She is currently managing 5 lab helpers, two of which are very new and require supervision. She is sharing one of the more independent helpers with APES. She aids our dual credit instructors with the behind the scenes (not in the student lab manual) information including reagent prep and chemical disposal directions. I can't count the number of times I would ask where something is and instead of telling me where it is she would literally jump up to get it for me. As a former public school teacher I know what it is like to be the instructor, the preparer of the lab, and the clean-up crew. I am so blessed to have Kena & her crew.



One of many Natural Science's  
outstanding staff!

*Thank you for everything you do  
Kena!*

Message given with the award: Kena is the Chemistry Lab Manager in Natural Sciences. Kena broke the record for kudos with over 20 nominations this month! She was nominated for kudos for all she does for the Natural Sciences department. Whether it be working hard, being a great colleague, or coming up with a solution (pun-intended) you can count on Kena! Thank you, Kena, for all you do!

## Science Commons update..., by Manny Rodriguez

As every semester, the Science Commons have been open to all students in Natural Science. It has its popular and not so popular times, but overall students who make use of the Science Commons perform better in their classes. We might argue that students using the Science Commons are more responsible students thus they are more likely to succeed in a course. However, I have a student repeating my course and using the Science Commons has been really beneficial. The first time the student took 102, their performance was really poor. This semester, the student wanted to do well, and asked what they can do to do better in the course, and I recommended using the Science Commons. This semester that student is one of my top three grades in the course. The student comes to the Science Commons twice a week and we work on homework or any other assignment due. Using the Science Commons twice a week has allowed the student to never be behind, rush or stressed out about the material covered (complete opposite to their first time taking the course).

### ***How do I think the Science Commons are helping my student do better in the course?***

The student now knows me outside of the classroom setting. The student is comfortable working with me and asking questions. Overall, the student perception of the course and the instructor changed in a positive way. The student now interacts with me in a more relaxed and comfortable manner, and due to working in the Science Commons, the student has also developed positive connections with other faculty, such as Sheryl and Chelsea (they both have Science Commons hours that overlap with mine).

One of the questions we all have is about how to make the Science Commons hours more appealing for our students. I normally get a good amount of students to use my Science Commons office hours, and here are a couple of things I learned about the Science Commons so far:

- It works best if you hold your Science Commons office hours right after class. Students tend to have questions right after class, and sometimes you might even have a line of students waiting to ask you a question after class. Hosting office hours after class at the Science Commons gives you the opportunity to leave the classroom in a timely manner (in the case someone else has a class in that classroom) while still providing students the opportunity to ask you questions in a more open environment (not your office). Also, if there is a line, it gives the students the chance to “leave” and then meet you at the Science Commons.
- It works best if you promote the Science Commons strongly at the beginning of the semester and put the Science Commons calendar link in an accessible place on your course page. When students ask for help, remind them that you will be at the Science Commons and they can work there and ask questions if they have any while you are there. Also, remind them that there are instructors at the Science Commons ready to help them with their course and that any instructor is a better resource than Google!!! Don't be afraid to recommend/direct students to specific times at the Science Commons. I always have a few students who cannot make it to any of my available office times, so I normally go over the Science Commons schedule and point out faculty who have taught the course and is available at the Science Commons to help.

## Science Commons Food (food pantry)..., by Sheryl Drake

You might have noticed the basket of more substantial snacks than just candy in the Science Commons. The Wesley Food Pantry @ Parkland College has been generous enough to be supplying us this semester. Karen and I met with Dawn, the operations manager, when we first started getting snacks. Dawn pointed out that college students are the second most food insecure population right behind the K-12 kids. We hope the basket of snacks serves two purposes: provide a snack because you can concentrate when you're hungry and make students aware of the great resource of the food pantry.

Thanks Britt for originally contacting the food pantry! Thanks Karen for grabbing the snacks each week.

If you have a \$20 (more or less) burning a hole in your pocket feel free to check out the <http://wesleypantry.org/donate.html> They are helping our students and it is amazing how far they can make a \$20 go.

## “Pop Culture” Challenge

Guess the name of  
the author or this  
limerick:

There once was a rod-  
shaped bacterium  
Whose genus was known as  
*Clostridium*  
Wrinkles could be corrected  
If it's toxin's injected  
But ingestion could cause  
botulism

- A. Dolores O’Riordan
- B. Sean Keating
- C. Kanye West
- D. Lil Wayne
- E. Chelsea Lloyd



Chelsea's Halloween costume as a cat harboring *Toxoplasma gondii*

## New faces

**Kaitlin Buckley:** Environmental Biology and Sustainability

**Ricardo Covarrubias:** Astronomy and Physics

**David Gay:** Weather and Earth Sciences

**Joseph (Joe) Mirabelli:** Physics and Chemistry Laboratory Assistant

### **My First Semester**, by *Chelase Lloyd*

My first semester was a truly wonderful experience. You know you're in a good place when your coworker asks for a picture of your beloved cat and sets it as the background of your classroom computer! Everyone that I've met across campus has been so welcoming, friendly, and helpful; I feel incredibly grateful to be part of such a supportive community. Even before the semester began, people reached out to help show me the ropes (and to show me what doors my keys open) so I wouldn't be \*as\* overwhelmed during prep week. I'm looking forward to continue getting to know everyone and to developing collaborations in the future (so please let me know if you would like to play with microbes together). The students have been wonderful as well – especially when they send me articles about disease outbreaks and fecal transplants! They make teaching really fulfilling and fun and I've learned a lot from them – especially those who have shared stories from clinical experiences. I believe it was around week three that someone asked how stressed out I was, but I never really felt that way. I was certainly very busy, but I never experienced the kind of dread I once felt as a researcher wondering if my experiment was going to produce decent data. At Parkland I'm always excited to come to work because of the people and the culture here – so thanks for making my first semester such a great one!

## PLANETARIUM UPDATE, *by Dave Leake*

The Planetarium underwent a major software upgrade in mid-August as the Digistar 4 system was replaced by Digistar 6. The optics blocks in our two JVC projectors were also replaced. They are now much brighter and the colors more vibrant. The conversion was paid for by planetarium foundation funds, master plan funds, and the planetarium revolving club account. Since the end of August, show producer Waylena McCully has been busy converting many of our original and captured programs to the new system. We do have a new fine-tuned star field with a beautiful Milky Way and more content to project, including NOAA datasets, plus applications for chemistry and physics. Many of the upgrades are "under the hood" like an "auto-align" system which uses cameras to quickly align both projectors - a process that took many hours of staff time in the past. And an "auto-blend" system merges the twin screens so they appear as one. Content is now cloud-sourced. The staff has just begun to tap into the many new things contained in the D6.



Waylena McCully and Dave Leake participated in the Great Lakes Planetarium Association's annual conference in Lansing, Michigan, in October. While Waylena had duties as president-elect of GLPA, Dave worked with the sponsors as chair of the Development Committee, working through and evaluating a new sponsor registration system. Highlights of the conference include:

- Learning of this past year's astronomical discoveries at the annual Astronomy Update lecture.
- Finding out about Apollo 11 resources from the Smithsonian Institute (we currently have the interior of the command module in the dome)
- Talking with representatives of the National Institute for STEM Education (NISE) who are making science toolkits available to partners. The Staerke Planetarium has signed up for the next kit and will plan a spring event to utilize the materials. There are materials on their web site for astronomy, biology and chemistry. (<http://nisenet.org/kits>)
- Hearing a presentation from Mark Reed about homemade filters to put over the computer screens inside the dome that dim the light output considerably but yet preserve the colors (and those filters have already been ordered for our two screens).
- Collected information on how to get kids more involved in amateur astronomy and backyard skywatching.
- Brought back a sample of a pen with red LED in the ends that could be used during AST classes for their planetarium sky quizzes.
- Learned about a seasons activity that could be used in AST 101 classes (though Dave has to repair a light source in the physics closet)
- Learned about a new Halloween show made available by the Longway Planetarium in Flint, MI.
- Talking to the director of the Barlow Planetarium in Wisconsin about summer camps (not that we have the staff for a venture like this but it could be partners through College for Kids).
- Dave also talked about the pending job vacancy at planetarium director in 2019.

Schools Update: By the Next Generation Science Standards (NGSS), the planetarium should be assisting with the instruction of both 5th and 8th grades. In the Champaign School district, both of these grades are undergoing a curriculum change. The 7th and 8th grades are now using IQWST and the 5th grades are moving to "Amplify Science." Amplify allows the students to assume the role of specialized scientists to attack a problem. In 5th grades, students will encounter an artifact found in an archeological dig that contains star patterns where they need to ascertain what the patterns mean and what might be depicted on a broken part of the artifact. Planetarium staff will be working with Unit #4's teaching and learning coordinators to come up with new programming for both 5th and 8th grades. These programs will be piloted in the spring and previewed to the teachers for evaluation.



It was announced on November 21 that the very first Dark Sky Park in the state is right in our backyard at the Middle Fork River Forest Preserve, northeast of Rantoul. For the full story, see <https://www.darksky.org/first-idsp-in-illinois-designated>. Dave Leake, along with members of the CU Astronomical Society have been working diligently with Mary Ellen Wuellner, Matt Kuntz and others at the Champaign County Forest Preserve District for years to acquire this designation. It signifies that the park recognizes and values the night sky as a natural resource. Once the word spreads, skywatchers from Chicago, Indianapolis and St. Louis will travel to Champaign County to enjoy the dark skies.

### Earthquake Screen and View

### Winds Screen and View



# Conferences and other professional development activities

## **I Lost Control of My Arm!** *By Bryan Krall*

I recently attended the 2018 NABT ([National Association of Biology Teachers](#)) conference. I had a great time and picked up a lot of new and exciting things!

One of the exhibitors was Backyard Brains. This company was started by a small group of grad students in neuroscience that wanted to make the education of neural activity more accessible. They make a series of kits that run \$150-\$500 that illustrate neural activity in different parts of the body. One piece of equipment (used in the neuroprosthetic kit) allows one person to control another person's arm! The sales rep connected my arm to another person's arm via electrodes, wiring, and a TENS unit so that when I contracted my forearm, their forearm would contract too. That was fun, until she wanted to reverse the electrodes. The sales rep reversed our connections and as he increased power to the TENS unit, my arm eventually spasmed. That was a very weird experience. The other person was having way too much fun causing my arm to spasm. I wasn't hurt or injured, but it sure felt weird! OK, I guess that was still fun for me too.



[TENS Video](#)

One of the workshops I attended was about data nuggets. I had never heard of these prior to attending this workshop. A data nugget is like a case study created by a researcher and a teacher but the focus is on learning how to make the leap between scientific data and graphing that data. For example, students would read a case study about how climate change is affecting a species of insect's ability to survive the winter. The nugget would provide the background information, hypothesis, and the data from the researcher's experiment. The data would be in the form of a table that depicts the number of insects that survive over any given winter with the average temperature over those winter months. Students would then be focusing on constructing an appropriate graph as well as making the appropriate conclusions regarding the hypothesis. I thought it was a quick and effective way to address graphing skills in my courses. There are different levels of data nuggets depending on where students are in their graphing abilities and these data nuggets can easily be modified to fit the graphing learning outcomes in any course. I plan on implementing data nuggets into my courses in the near future.

Another one of the workshops showing how teachers can use sticky notes of various colors to illustrate the various processes involved with evolution: mutation, bottleneck effect, founder's effect, migration, and selection.

All in all, I'm very glad to have had the opportunity to go. I came back excited and refreshed!



## Photo Challenge!

### Can you identify the 5 chemists in the photo?

Left to Right: Mindy Tidrick, Christina Beatty, Knute Rockne, Laura Sonnichsen, and Sheryl Drake

Yes, Knute Rockne, the famous football coach, was a chemist! He graduated magna cum laude in 1914 with a pharmacy degree from Notre Dame. Then stayed to teach chemistry and be an assistant football coach and eventually head coach.

<https://www.encyclopedia.com/people/sports-and-games/sports-biographies/knute-kenneth-rockne>



Parkland College Attendees to the BCCE Conference—Summer 2018

### Can you identify the 2 Notre Dame alumni in the photo?

Mindy Tidrick & Knute Rockne  
Lucky for us Mindy (part-time chemistry faculty) knows chemistry. Unfortunately for Knute, the builders of the last plane he flew in did not. At the time of the crash, 1931, wing joints and the wooden outer skin on planes was often attached using water-based glues. Depending on which sources you reference the wing panels were loose prior to the flight through the rainstorm. Like Dissolves Like-rainwater and water-based glue make a great solution but cause a big problem when trying to hold a plane together.

<http://www.irishlegends.com/pages/reflections/reflections49.html>

## Biennial Conference on Chemical Education hosted by the University of Notre Dame July 29-August 2, 2018

by: Sheryl Drake

During the BCCE conference, I attended to quite a few sessions. My top three highlights were:

### #1 Understanding Dimensional Analysis and Stoichiometry Using a Card Game by Sandra Keyser from Drew University

It is a pretty simple game. In teams, students draw a given units card and a desired units card and then they have to line up the conversion cards in order to convert from the given units to the desired units. The trick here is that only one team member is allowed to touch the cards so everyone else has to verbalize their help. Sandra emailed me an electronic copy of her game, I modified it to work for our students, and tried it out. In the spring, I am going to rearrange some other activities, so we have more time with the game and can really benefit from the activity.

## #2 Enriching Laboratory Learning with Inexpensive 3D printed Analytical Instruments: New Designs and Activities for Active-Learning Opportunities Across the Curriculum Lon Porter Jr. from Wabash College

It was fascinating what he and his students could do with 3D printer technology. Lon shared his STL files (stereolithography aka 3D printer files) for printing filter fluorometers in *J. Chem. Educ.*, **94**, 105 (2017) and for colorimeters in *J. Chem. Educ.*, 2016, **93**, 1305 (2016). Students didn't just push the print button on the 3D printer but experimented with how to make better and more affordable instruments. Students didn't just push the button on the colorimeter or fluorometer but actually assembled the instruments dispelling the mystery of "I put my sample in the magic box and I get data". The instruments designed and built in the upper level courses were then used by students in the entry level courses. Entry level students weren't fighting over one instrument, every student could have an instrument. The instruments weren't research grade but were within 5% of the accuracy of a typical benchtop instrument and so much more affordable. By the way Lon's advice is to learn CAD! One of these days and not too far in the future you'll be looking across the room and think I need a coat hook over there and instead of going to the store and picking one out you'll sit down at your computer and design exactly what you want and send it to 3D print.

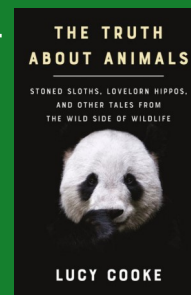
## #3 SpatialAR: Augmented Reality Game for Learning Molecular Structure Julia Winter from Alchemie

Julie introduced us to Isomers AR which is a free smartphone app that allows students to build isomers and see them in 3D through their smartphone with the sticker to the left. Check out the website <https://www.alchem.ie/> even if you aren't an organic chemist the technology is intriguing.

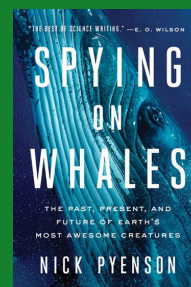


## Top Science Books of 2018 (Science News)

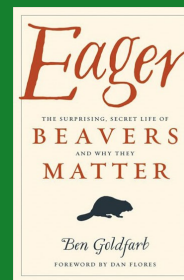
The Truth About Animals  
By Lucy Cooke



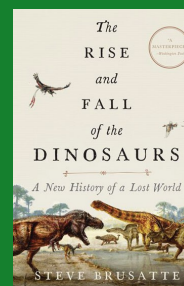
Spying On Whales  
By Nick Pyenson



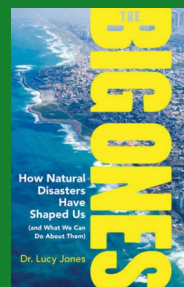
Eager  
By Ben Goldfarb



The Rise and Fall of  
the Dinosaurs  
By Steve Brusatte

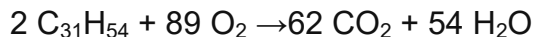


The Big Ones  
By Lucy Jones

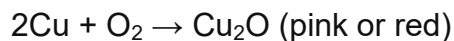


## The Science Around ND *by: Sheryl Drake*

Candles undergo combustion reactions in the Grotto of Our Lady of Lourdes.

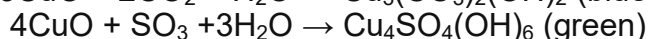
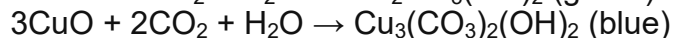
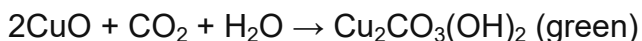


Gutters and downspouts undergo oxidation-reduction reactions on many of the buildings. Copper donates electrons to oxygen, which oxidizes the copper and reduces the oxygen:



Then the copper(I) oxide continues to react with oxygen to form copper(II) oxide (CuO):  $2\text{Cu}_2\text{O} + \text{O}_2 \rightarrow 4\text{CuO}$  (black)

The CuO reacts with carbon dioxide (CO<sub>2</sub>), water (H<sub>2</sub>O), and sulfur trioxide (SO<sub>3</sub>) from the air:

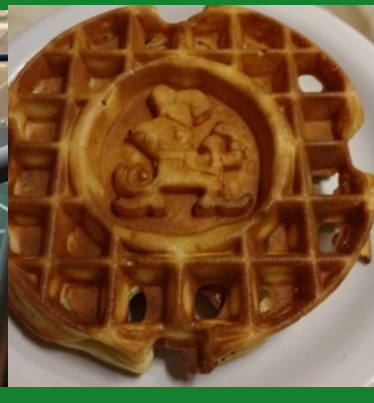
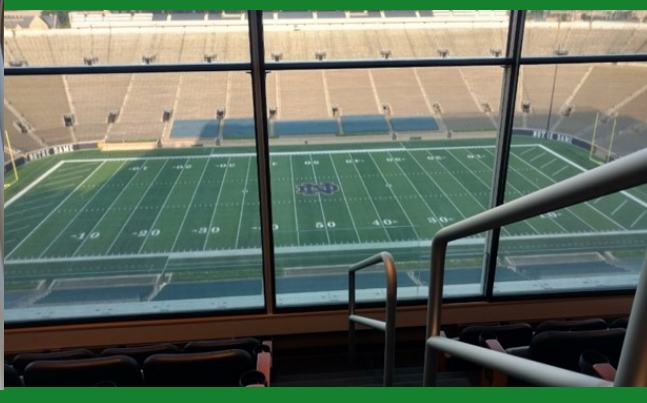


A Notre Dame waffle contains ~47 g of carbohydrates at 4 kcal of energy per g of carbohydrates a ND waffle would supply a football player or chemist 188 kcals of energy.

Yes, I am taking a quick break on the 50-yard line (for you scientists the 45.72-meter line), one floor below the President's suite. The poster session is going on behind me.

The sounds waves coming from the 5,164 pipes of the Murdy Family organ in the Basilica of the Sacred Heart were impressive.

Check some out at <https://soundcloud.com/notre-dame-magazine/craig-cramer-murdy-organ-nd-bach>



## Biennial Conference on Chemical Education, *by Laura Sonnichsen*

I attended the 25<sup>th</sup> BCCE conference in late July at University of Notre Dame in South Bend, IN with Mindy Tidrick, Sheryl Drake & Christina Beatty. The conference was held over 5 days (Sunday afternoon – Thursday morning) and was packed with symposia and workshops on the topics of teaching chemistry, research in chemical education, and many other similar topics. I attended talks on flipping the classroom, engaging students in organic chemistry, active learning, and chemical education research. We barely had any time to explore the campus, though we did get Mindy to show us around a bit. And, most of the evening events were held on the 7<sup>th</sup> & 8<sup>th</sup> floor of the Duncan Student Center, which overlooks the football stadium. You could get a great view of the field!

Some of the sessions reaffirmed some trends that I have observed myself. For example, one talk was on how seat placement affects group work efficiency. It was determined that groups of 3 work better than groups of 4 (which I have also found to be true), and that linear seating discourages discussion. Another talk I attended looked at how students are learning about reaction mechanisms. It was determined that many students simply memorize without understanding, and are missing the links between the representation of a reaction coordinate and the underlying concepts. This is also something I have observed in my classes.

Another interesting talk discussed the different criteria one school used to determine placement in CHE 101 vs CHE 100 level courses. They tried using a Chemistry placement exam, a math placement, SAT/ACT scores, HS GPA, technical questions and self-efficacy questions. It was determined that the SAT math scores was the best predictor of success in CHE 101 followed by the technical questions. The technical questions were math questions relevant to chemistry – 10 total questions, with 2 on each of the following topics: Unit conversions, manipulating fractions, percentages, order of operations, significant figures. They use math placement & HS chem grades to sort the students, then give the CHE 100 students a chance to take the technical questions to see if they should move up to CHE 101. I thought it was a very interesting talk – confirmed our findings, but also focused on moving students up, while we tend to focus on moving them down.

Overall, I really enjoyed the conference. I made some connections to other organic instructors, got a chance to hear about new research in how students learn chemistry, and came back energized and ready for the Fall semester. I highly recommend attending a BCCE if you have a chance. The next BCCE will be at Oregon State University in 2020: <https://bcce2020.org/>

### 25th Biennial Conference on Chemical Education

July 29 - August 2, 2018  
Hosted by the University of Notre Dame


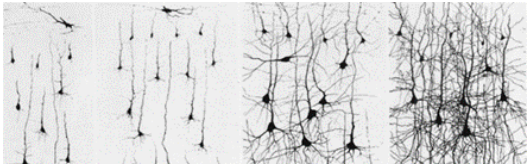


CHEMICAL EDUCATION  
IS GOLDEN

Laura and Sheryl's articles more than cover the array of interesting talks and sites at the 2018 Biennial Conference for Chemical Education held at Notre Dame. I'll add just a bit.



Besides the joy of getting off campus with colleagues, there were many take aways. I'll try to stick to the most interesting to even the non-chemists J :

- Some psychology to start: Do you get frustrated when some students seem to make poor decisions? Do you find out these students also often have a lot of other heavy burdens in their personal life, especially financial burdens? Have you heard of the “**Scarcity Mindset**”? Google “NPR Scarcity Mindset” for an interesting article which basically finds that impulse control gets worse under stress. Sugar farmers in India were studied because of their unique financial situation. They are only paid once a year, right after harvest. They made better decisions when they were better-off financially right after the harvest. But by the time the year was up, and they were financially poor, they had worse impulse control. The article states: “To be clear, it's not that poor people focus on immediate needs because that's all they want to think about. It's all they can think about. Scarcity captures the mind. In fact, the tunnel vision produced by scarcity can actually lower how you perform on an IQ test...Put simply, being poor is like having just pulled an all nighter.” Anyway, just something to consider as we constantly try to reach students better.  

- >90% of dollar bills in a sample of 50 bills tested with HPLC contained cocaine (about 12 ug/bill). While “n” isn't large here, I have heard similar numbers from other studies. Just letting you know this in case you're wondering.
- “**Flipped classrooms**” are still quite popular. This is the pedagogy where students do the “easier” prep at home before lecture to leave time to wrestle with ideas/do problem sets etc. during class while classmates and the instructor is present. This prep is usually through watching videos, accompanied by readings. Some in the education world, however, argue that watching videos is still just as passive as listening to a lecture in class. There is software out there, however, like **Playposit**, which allows you to embed questions in videos that students answer. Their answers and associated points are recorded and this can be used as participation or even checks. There is also **Echo360** where they can type questions as they listen to the lecture and the software also checks how long they watched a video for.
- You CAN **change your brain**: From the left the pictures show us the neural circuitry of a newborn, then a 3 month old, 15 month old, and 2 year old. Rough takeaway: The more neural connections, the more capable your brain. *Neuroplasticity* means we can increase and restructure the connectivity of our neurons (at any age). [from a presentation by Holly Currie, PhD, Frostburg State University].  


## Attending the National Strength & Conditioning Associations 6<sup>th</sup> International Conference in Madrid, *by Chris Warren*

Over the past few years I've had the itch to expand my professional development experiences and growth beyond the borders of the United States. During my Precision Nutrition mentorship I had two mentors from the United Kingdom and Germany that worked with me on a weekly basis for a year. There were times when these mentors would share nutritional solutions that seemed so very different than what our standard thoughts and solutions would be here in the United States. When I discovered that the NSCA, the organization that certifies our personal training students, was offering a conference in Madrid I was excited to learn if there were different philosophies about strength & conditioning in Europe versus here at home.



As an additional bonus, the keynote presenters were talking about topics that I was quite interested in, and have devoted quite a bit of time to studying over the past few years. Juan Badillo, of Spain, spoke about velocity based training and had almost two decades of experience using a method that is relatively new in the United States. Velocity based training is a training method that measures the velocity of the barbell or other weight training implement and bases the number of reps and sets completed in a set on a 'speed zone measurement'. A rep is the number of times a person completes a motion such as a squat. A set is a grouping of several reps. If a person predetermined a goal to complete 8 reps of squat, this would be considered one set of eight reps. The traditional American workout plan may call for 3 sets of 8 reps at a given load/weight. Speed of movement is largely ignored. With velocity based training the speed of movement becomes the most important variable. Strength and stability are developed at slower bar/implement speeds. Power is developed at higher speeds. When using velocity based training you set a goal and have a bar speed range to maintain throughout the set. The bar speed is measured through technology connected to the bar. For example, if your goal for the set is to make every rep faster than 1 meter per second, then the first rep where the bar speed is slower than 1 meter per second completes the set; whether that occurs at 2 reps or 8 reps. This change in emphasis should become more common in the United States over the next decade. We've been teaching these concepts to our personal training students for the past three years, but this presentation gives me the confidence that my thoughts are correct that velocity based training will be a standard of future protocols.

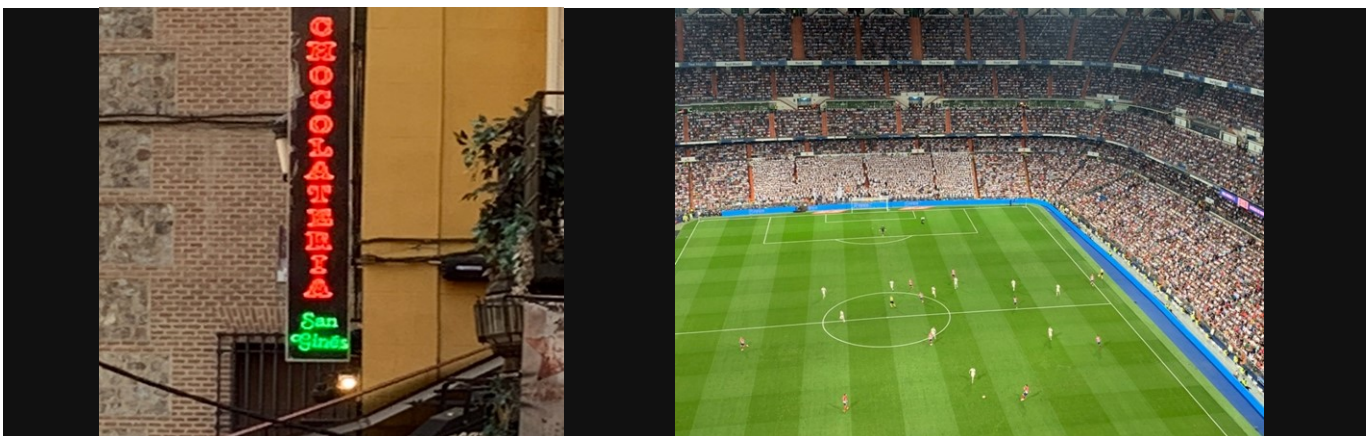
My second favorite presentation was given Dr Gregory Haff from Australia on long term athletic development. Long term athletic development models examine safe progressions of movement patterns, physical literacy, and adequate levels of strength for children, adolescents, and adults through the lifespan. These models identify the appropriate ages and biological windows to introduce these concepts for the trainer/coach to ensure optimal development. However, here in the United States the long term athletic development (LTAD) model is 10-20 years behind other countries of the world. Canada currently has the leading model where the physical education teachers, strength & conditioning coaches, and sport skill coaches are certified in certain age ranges of their comprehensive model. For example, if I know I am going to be an elementary

school teacher my certification process teaches me appropriate movement pattern progressions, strength progressions, sport skill progressions, and appropriate teaching methods for that specific age range. This presentation provided me with excellent discussion material for many of our kines professions including physical education instructors, coaches, therapists, personal trainers, and strength & conditioning coaches.

This was my first trip to Europe, so I had quite a bit of apprehension about being in a country where I did not speak the language. Although the majority of the presentations were in English, I did attend multiple that were provided in Spanish with an interpreter and it was surprisingly easy to follow. I was also shocked by the number of people that spoke multiple languages, feeling a bit of disappointment in myself that I didn't pay more attention to my foreign language classes. As a high school student I didn't envision myself ever going to Europe. The foreign language instructor always framed the language as a requirement to graduate and additionally to work as a bilingual businessperson. Since I didn't see myself doing that I just met the graduation requirement and shortchanged the learning experience. After this experience I am now, as an instructor, explaining to students multiple reasons why they are learning a given concept.

This trip confirmed for me that the pace of life in Spain is significantly slower, stress levels are reduced, and the food and drink portions are much smaller. I had attended the NSCA national conference in Indianapolis a few weeks before this trip and the daily sessions ran on the hour from 8 am – 6 pm with 45 minutes for lunch. The NSCA international conference ran from 8 am – 6 pm but we had a 45 minute coffee/social break in both the morning and afternoon; and a whopping 90 minutes for lunch. Quite honestly I didn't know what to do with myself with that much time at first. Eventually, I realized that these breaks gave the conference attendees all ample time to connect with each other. I met people from all over the world and there was enough time to hear about their work lives and experiences.

I spent my evenings trying to knock out the top ten things to do in Madrid. I went to the museums, the palace, and spent nearly every night eating and drinking in the common areas of the city. If you are a chocolate lover and find yourself in Madrid, San Gines chocolate shop is the spot. The 25 minute wait for a cup of hot chocolate is well worth it. This is no ordinary cup of hot chocolate though – it is so thick they give you a spoon to eat it! My favorite non-conference activity was attending the Real Madrid vs. Atletico soccer game at Santiago Bernabeu Stadium. I've been to the NCAA final four and the national championship four times and the intensity of the fan base for European soccer trumps it. It was absolutely crazy how serious they are about soccer, and I went to a regular season game.



Photos shared by Chris Warren



## IFB and SWS Conferences, *By Heidi Leuszler*

I was fortunate to go to two relatively local conferences this November to learn current information in environmental science and sustainability, primarily for my environmental science class.

The Illinois Farm Bureau's Local-Regional Food Conference, LiveLocal, was in Bloomington this year. I was able to talk with farmers, nonprofit food organizations, vendors, and food safety officers. The talks were diverse and though focused on local food production, spanned the range of group dynamics and getting people on board to make policy, nutrient reduction in field runoff waters, best practices for food production, food bank regulations, business planning, social media use for small farms, and community outreach through education and food. As Illinois promotes fruit and vegetable farming as a mode of restoring our unstable economy through policy like the Local Food, Jobs, and Farms Act (<http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=3137&ChapterID=7>), I can help students see the sustainable benefits of supporting local farms and food programs.



I also attended the Stormwater Solutions Conference and Expo, Live National Stormwater and Erosion Control Event in Tinley Park. For this conference, I wore two hats: one was simply to learn more about stormwater for my course's water unit, and the second was to market and liaison regarding Parkland's training center for the National Green Infrastructure Certification Program that, with the support of Natural Sciences Department, I have built with Business Training and Community Education. Parkland is the first training center in Illinois outside of the original partners who designed the program, and though every session I went to at least mentioned that they struggled getting individuals trained in green infrastructure, I was surprised to see how few knew of the certification program. I talked to every vendor, every speaker I could, spoke at a colleague's talk, met with students, researchers, civil engineers, and landscaper contractors, passed out flyers, and finally handed out all of my Parkland business cards that were printed in 1999. It was two excellent days. I learned more about stormwater and urban design than you would be interested in reading about, made some excellent connections, and was able to form some solid plans for the future of our certification program.



# Science Challenge

## Science Games

Have you completed a CHEM-Do-Ku?

Wasserstoff 1 H 1,01	Helium 2 He 4	Lithium 3 Li 6,94	Beryllium 4 Be 9,01	Bor 5 B 10,81	Kohlenstoff 6 C 12,01	Stickstoff 7 N 14,01	Sauerstoff 8 O 16	Fluor 9 F 19
	H	F					O	Li
	B		H			Be	C	
			Be		B	He		
C					N		He	
O			Li		C		Be	
	Be				F	C	Li	N
	He							
	N	O				Li	H	
				B				

## Science Board Games

Looking for presents for this holiday season? Here are some ideas!!!

Evolution

Covalence

Peptide

Photosynthesis

Virulence

Cytosis

Xtronaut

Constellations

One of my favorites (chess-like game) : HIVE

## Astronomy Word Puzzle

Find and circle all of the Astronomy related words that are hidden in the grid.

The remaining letters spell a secret message.

T H T F A R C E C A P S P E L F A I R S  
 O R B I T S R T S P M E M I E V R E S O  
 N T O D S P S A E A R I G O O T I Q H R  
 S S F I R A U O T I T H L N O R O U E E  
 R O T O E C N E G S T E R K U N B I C D  
 A L E R M E O E P Y Y E L A Y B O N A G  
 S A C E O S E N E O P R T L L W N O P I  
 L R L T N H T A S U C N A E I S A X S A  
 U W I S O U R R S T E S F N O T M Y P N  
 P I P A R T A H E C E R E L I M E A E T  
 O N S P T T O N A G A L A L W B T U E G  
 A D E O S L A M A W S R L Y E S E R D A  
 L R D G A E I L D R S A E A T T O O N L  
 U E I E E X A E A Y I L N L T I R R C I  
 B T T E O X T S S I R A L O P I V A E L  
 E A A R I I A T M O S P H E R E O A S E  
 N R P E H U E L O H K C A L B O K N R O  
 R C S W Q M M U N I V E R S E S C T A G  
 A N D R O M E D A G A L A X Y R O N P G

- ANDROMEDA GALAXY
- APOGEE
- ASTEROID
- ASTRONOMER
- ATMOSPHERE
- AURORA
- BINARY STAR
- BLACK HOLE
- CONSTELLATION
- CORONA
- CRATER
- DEEP SPACE
- ECLIPSE
- EQUINOX
- GALAXIES
- GALILEO
- GRAVITY
- HUBBLE
- KEPLER
- LIGHT YEAR
- METEOR
- MILKY WAY
- MOON
- NEBULA
- ORBIT
- PARSEC
- PERIGEE
- POLARIS
- PROXIMA CENTAURI
- PULSARS
- QUASARS
- RED GIANT
- SATELLITE
- SOLAR SYSTEM
- SOLAR WIND
- SPACE SHUTTLE
- SPACECRAFT
- STARS
- SUN
- SUPERNOVA
- TELESCOPE
- TIDES
- UNIVERSE
- WHITE DWARF

# Throwback Photo Challenge, *By Dave Wilson*

How many people can you name in this photo? Can you identify the year this photo was taken?



Taken in Summer 2006

# Updates from the Professional Development Committee, by Christina Beatty

PDSF is the Professional Development Subcommittee for Faculty (a PCA committee). We have been revising the faculty academy, trying to broaden what gets “credit” for professional development (PD). The faculty academy is the sort-of “pre-approved” method for FT faculty earning enough PD credit to qualify for the \$500 pay bump that is mentioned in Article IV.P, page 27, of the PAE contract. This can be done with a combination of CETL sessions, EDU courses through CETL, external courses and conferences.

Last year, through IDEAS funds, PDSF was able to also offer something similar for part-time faculty by offering a \$500 stipend for completion of 5 PD credits (our very own Mindy Tidrick, Amy Nicely and Steve Mullen have received it!) Now the College has graciously offered to keep that budget line to offer 10 part-time faculty stipends a year of \$500 each for completion of 5 PD credits.

We have worked on trying to broaden what counts as professional development, like perhaps advising a student group, supervising honors projects, chairing a committee that doesn’t get ECH release, coordinating study abroad or service learning for students among other activities. To receive credit, they have to be part of a goal-directed Certificate. Right now, there are 6 certificate options.

	Certificate in Pedagogy	Certificate in Technology	Certificate in Supporting Students	Certificate in Assessment	Certificate in Health & Wellness	Certificate in Supporting the College
<b>Goals</b>	Support development & implementation of best teaching practices	Support use of technology in teaching and best practices in online & hybrid classes	Support awareness of and support for diverse <u>students</u> needs	Support understanding & development of course, program, Gen Ed, and college assessment	Support faculty, staff, and student health and wellness, & stress reduction	Support faculty and staff in sharing their expertise with others in the college
<b>Examples of Parkland Classes &amp; eLearn Sessions</b>	EDU 931: Instruct. Design, EDU972: Faculty Orient.; EDU 974: Student engagement tech. <u>Turnitin eLearn</u>	EDU914: Instruct technology skills, <u>eLearns: Virt. Classroom</u> , Remote Proctoring	EDU 921: Creating Accessible course resources, eLearn: Attendance widget; Ally training	EDU 931: Instruct. design, EDU 975: Assess., eLearn: Disc Grader	eLearn: Fin. Aid, Mindfulness, Communication skills	EDU 971: Special Topics, EDU classes on leadership or to support teachers in creating their own CETL sessions or EDUs
<b>CETL Sessions, Workshops, &amp; Events</b>	CETL sessions related to pedagogy, Faculty Orientation, <u>Plickers</u> , Teaching teens, Teaching Toolbox Series, Great Teachers Retreat; FYE and One More Student Training;	CETL & COBRA sessions on best practices in use of technology and teaching online, <u>ZipGrade</u> , I+T=E Tech retreat; 508 Accessibility awareness and pedagogical changes	CETL sessions related to diversity, cultural awareness, mental health, differences in abilities, etc. Prepping students for College, One More student, FYE, <u>WeResolve</u> , Great Teachers, Recognizing Distress, Teaching Resources	CETL sessions on assessment, updating CIFs, Prog assess., Gen Ed norming and assess., CIF Revision, <u>GenEd</u> , <u>Dept/Division</u> Assess., NILOA visit, assignment <u>charette</u>	CETL and college sessions related to health and wellness, Restorative practices, Mindfulness, From conflict to calm, Carle EAP, Health & Wellness fair	CETL and college sessions related to leadership and service, IDEAs grants, Leadership Retreat or Academy
<b>Facilitation</b>	Facilitating EDU courses or CETL sessions related to certificate goals					
<b>External opportunities</b>	External opportunities relevant to a specific certificate (e.g., Great Teachers’ Retreat, Illinois Online Network Master Online Teacher Certificate, etc.)					
<b>Scholarship</b>	Articles, books, and conference posters and presentations related to a specific certificate					

Come to the BROWN BAG on 12/12 at 1pm (see my email) to learn more or email me [cbeatty@parkland.edu](mailto:cbeatty@parkland.edu)

In the spring, I will be off-campus (on sabbatical), so email [centerforexcellence@parkland.edu](mailto:centerforexcellence@parkland.edu) or Amy Penne ([apenne@parkland.edu](mailto:apenne@parkland.edu)) with questions. Amy will be taking over as Faculty Engagement Coordinator (from Sarah Grison) and subbing for me as PDSF Chair so she will be “the face of CETL”.

## Updates from the Clubs

### Parkland Science Club: Fall 2018 Update, by C. Britt Carlson

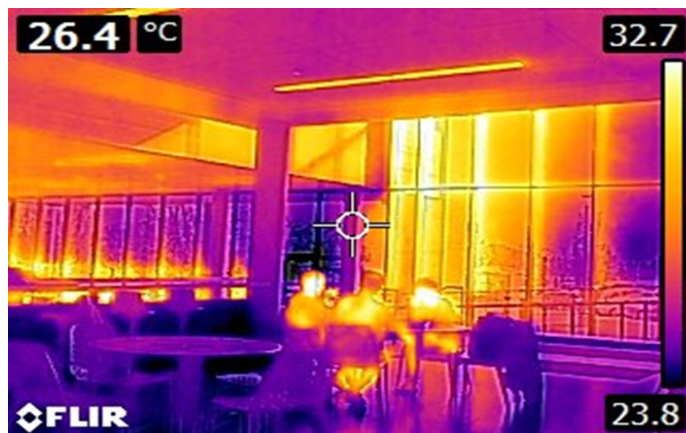
The Parkland Science Club, PSC, had a busy semester. We continued to engage students with hands-on science activities. However, this semester we moved these to the U-wing in an attempt to have a bigger impact with the wider student population. These events were successful and we were able to get students excited about cell phone microscopes, making a greenhouse in a baggie, making ice cream using dry ice, and playing with IR cameras.

This semester, PSC participated in trips offered by other groups – a trip to Yerkes Observatory hosted by the Parkland Astronomy Club and a trip to Starved Rock with Julie Angel and her geology students.

We also continued our visiting lecture series, but increased the number of speakers to about 2 speakers/month. We were able to do this by collaborating more closely with the Parkland Astronomy Club and also with Sustainability Club. Our speakers included Kristen Vaccaro, a UIUC Computer Science grad student, Ahmad Ahmad, a PSC graduate and current undergraduate researcher in chemistry at Indiana State University, Kevin Cummings, a UIUC mussel biologist (co-sponsored with the Sustainability Club), IT Singh, a UIUC atmospheric sciences grade student (co-sponsored with the Parkland Astronomy Club), Kip Jacobs, a UIUC weed researcher, and Christian Boyd, a UIUC Physics graduate student (co-sponsored with the Parkland Astronomy Club). These events were well-attended and we thank everyone who supported this attendance through extra credit or other incentives. To receive extra credit, I ask my students to write reflections on their attendance at these talks. I find most students are excited to learn more about different areas of science and are frequently surprised to find how interesting and engaging these talks are. Often, the students talk about how they have learned new knowledge, but have also learned that they are more interested in different types of science than they thought they would be. Hooray!

Once again, PSC volunteered to run a table at the Urbana Science Market. Parkland students worked with the public to create slime monsters and greenhouses in a bag. It was well attended and the visiting kids had a lot of fun with science. They also enjoyed the free color-changing pencils (thanks to the department for the donation) and mole stickers and activity books (thanks to the local ACS chapter for funding these items).

As we end Fall 2018 and look forward to Spring 2019, we are recruiting a new secretary and treasurer. We are also always excited to have more interactions with Parkland faculty and staff. Bryan Krall and I are the current faculty advisors, so please contact one of us if you'd like to be more involved.



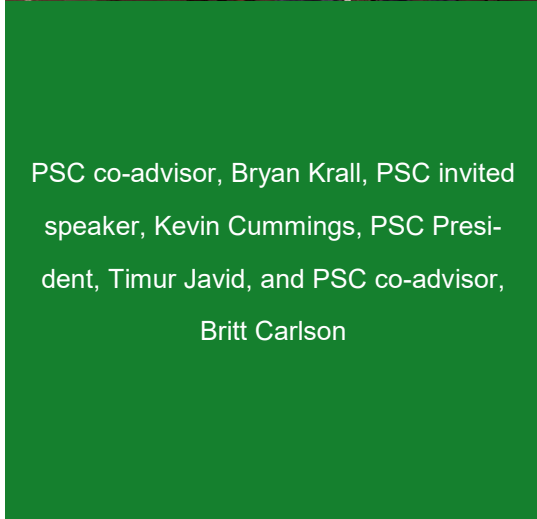
Hands-on science in the U-wing: playing with IR cameras



Hands-on science in the U-wing: making ice cream with dry ice: PSC President (Timur Javid) and VP of Promotions (Hexuan Xie), and student member (Joy Lee).



PSC co-advisor, Britt Carlson, and PSC President, Timur Javid (both on the left) with PSC Invited speaker and Parkland alumnus, Ahmad Ahmad (in orange) and Parkland alumni who came back to Parkland to see the talk.



PSC co-advisor, Bryan Krall, PSC invited speaker, Kevin Cummings, PSC President, Timur Javid, and PSC co-advisor, Britt Carlson



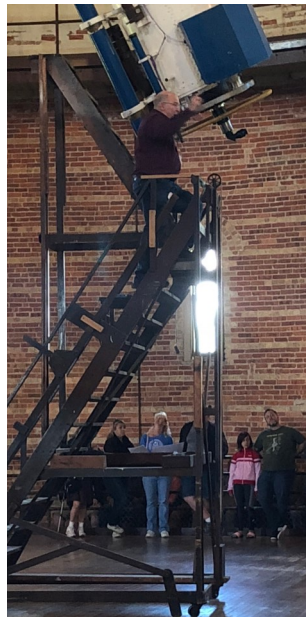
## **Astronomy Club**, by Erik Johnson

The astronomy club's annual trip to Yerkes Observatory went off without a hitch in September. I was relieved that despite its age, the college's old, blue van performed reliably for all seven to eight hours of driving. Eight students joined me on the tour, and they were suitably awestruck by the 60'-long telescope.

Unfortunately, the tour guides were a bit harder to hear because it was much more crowded than I had ever seen before! That was expected, since the University of Chicago closed the observatory on September 30 and there is no news yet about when the property will be sold and reopened. While I'm sad about the closure, I understand the decision. The observatory was top-of-the-line when it opened in the 1890s, but it was surpassed within 20 years and obsolete by the end of the 20th century. Light pollution and atmospheric conditions in southern Wisconsin and the advent of the Internet meant that a replacement telescope on the property was unfeasible.

The astronomy club is meeting every other Wednesday at 3:30. This time allows us to use the astronomy classroom, have the officers available, and to coordinate with the science club. We hosted two graduate students from UIUC to give a talk this semester, a physicist studying condensed matter theory, and an atmospheric scientist studying storm formation in Argentina. We hold monthly events at the planetarium and solar observing in the cafeteria once a month as well.

# Yerkes Field Trip



## Inside the classroom

### Physics and Astronomy New Gravity Simulator, *by Erik Johnson*

The gravity simulator shows a two-dimensional representation of general relativity. Objects with greater mass will depress the cloth more, which is analogous to how massive objects warp the fabric of spacetime in the Universe. Since there is now a “well” surrounding each object in the simulator, the objects would be drawn toward each other as they are inclined to fall into the wells. This shows how Einstein’s theory of general relativity explains gravity, as opposed to Newton’s description of the concept, where we had no mechanism for how massive objects could be attracted to each other.



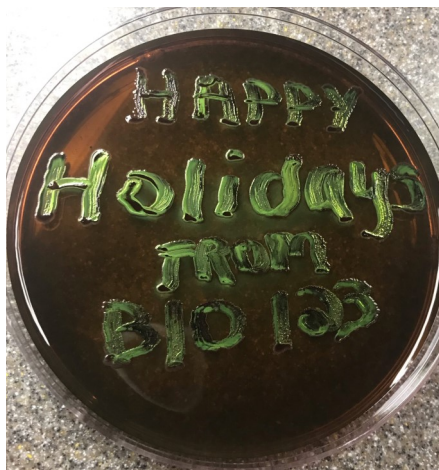
When set the objects in motion in the simulator, you can also see how orbits come about. Without any motion, everything simply comes together and agglomerates. If the smaller object is moving, though, you’ll see it complete an elliptical orbit around the larger object. Although it’s drawn toward the massive object, its speed helps it maintain its distance. Newton was able to connect this concept of orbits to our ground-based understanding of gravity. It helps us understand how to put satellites in space, how we could send astronauts to the Moon and back, how everything in the Universe seems to move around something bigger, and why all the planets go around the Sun in the same direction.

I look forward to using this demo inside and outside the astronomy classroom. I’m sure it would be useful for anyone who wants to demonstrate gravity.



### Microbiology and colored *E. coli*, *by Chelsea Lloyd*

The green is *E. coli* and the red is *Serratia marcescens* (if you ever see pink slime in your shower it’s probably *Serratia*!). They’re growing on EMB agar which produces different colors when sugars in the media are fermented!





## Science Test Alert!!

In the article the acronym GOI was used. What does GOI stand for?

- A. Get Over It
- B. Government of Ireland
- C. Gene of Interest
- D. Gross Operating Income
- E. General Operating Instructions

When was the first green fluorescent protein discovered?

- A. 1920's
- B. 1960's
- C. 1980's
- D. 2000's

The original green fluorescent protein (GFP) was discovered back in the early 1960s when researchers studying the bioluminescent properties of the *Aequorea victoria* jellyfish isolated a blue-light-emitting bioluminescent protein called aequorin together with another protein that was eventually named the green-fluorescent protein (Shimomura et al., 1962).



Happy thanksgiving from BIO141!

## Bacteria are the Ultimate Transformers

by Britt Carlson

Students in BIO141 perform a bacterial transformation experiment every semester. The basic idea is pretty simple. You take a gene of interest and convince a bacterial cell to absorb a DNA molecule that contains that GOI – in our case a gene that produces Blue Fluorescent Protein or Green Fluorescent Protein (see GFP Nobel prize story for the discover of this very important protein -<https://www.nobelprize.org/prizes/chemistry/2008/press-release>). The bacterial cell can now express that gene since the genetic code is universal (i.e. GGG in the DNA sequence codes for the amino acid glycine if you are a bacterium, a human, or a Tawny-crowned Pygmy Tyrant).

Once the bacterium is transformed in this manner all of its progeny will get a copy of that extra DNA and also be fluorescent. Thus, you can do things like this if you have lots of extra time and your first name is Britt. We should all be thankful that Britt is not responsible for writing our paychecks!

## Honors projects CHE102, by Manny Rodriguez

The goal of the special project in CHE102 is to expose students to current trends in science and to learn about primary research. While most students can learn a lot from readings scientific journals and performing literature researching, other students would rather learn about primary research by completing a short primary research project.

For the past two semesters, I started offering students the opportunity to change the approach of the special project from scientific literature research to hands on experimental research. In order to be eligible to complete the special project as a laboratory experiment project, the student must have:

- 3 to 6 available hours to complete the experimental portion at Parkland College (Rm. L127)
- Williness to work under the instructor supervision
- Follow all safety procedures required to work in a laboratory setting

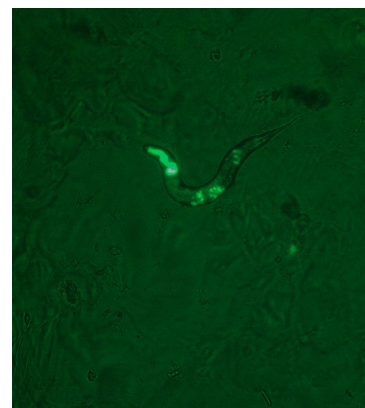
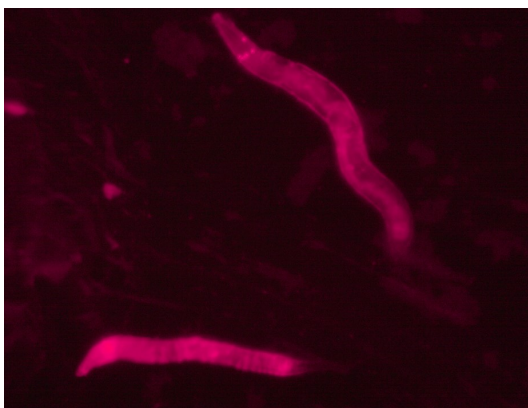
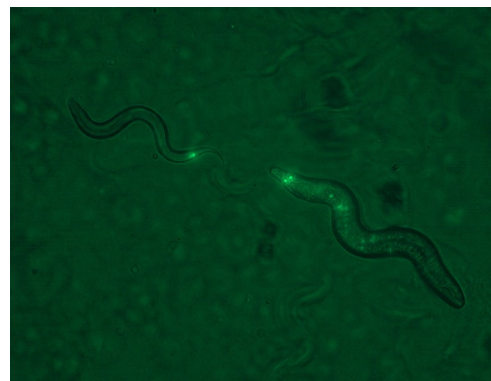
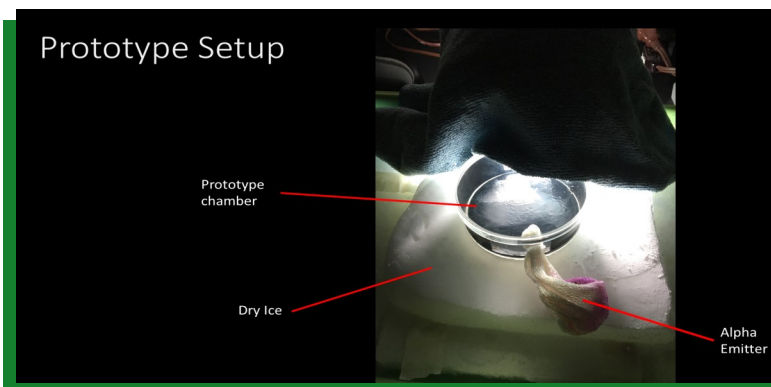
Last Semester I had 7 seven students and this semester I had 3 students completing the project as a hands-on experimental project. The following topics are available for students to complete their Laboratory Research:

Topics	Topics	Description
Cloud Chamber	Physics, Chemistry and Engineering	Development of a bigger departmental cloud chamber for nuclear chemistry/radioactivity demonstrations
Electroplating	Chemistry and Physics	Optimize conditions for an electroplating of Zn lab (testing/optimizing conditions)
C. Elegans	Biology and Microbiology	Fluorescence microscopy of C. Elegans
	Chemistry, Organic Chemistry, Biology and Microbiology	Pheromone purification from C. Elegans cultures
Saponification	Chemistry	Development of a kitchen procedure for soap preparation

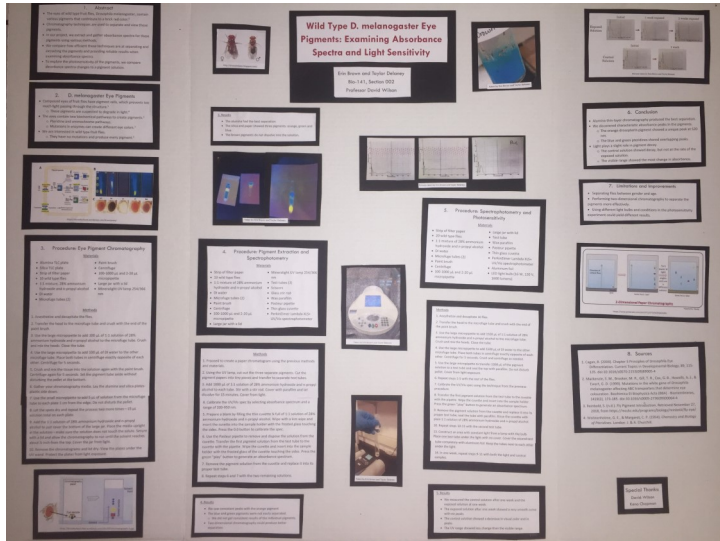
Cloud Chamber

Fall 2018 student results

C. elegans microscopy project

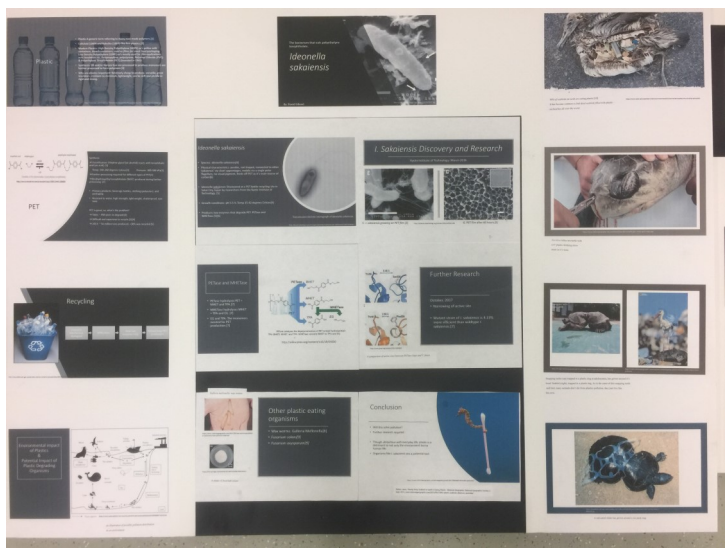
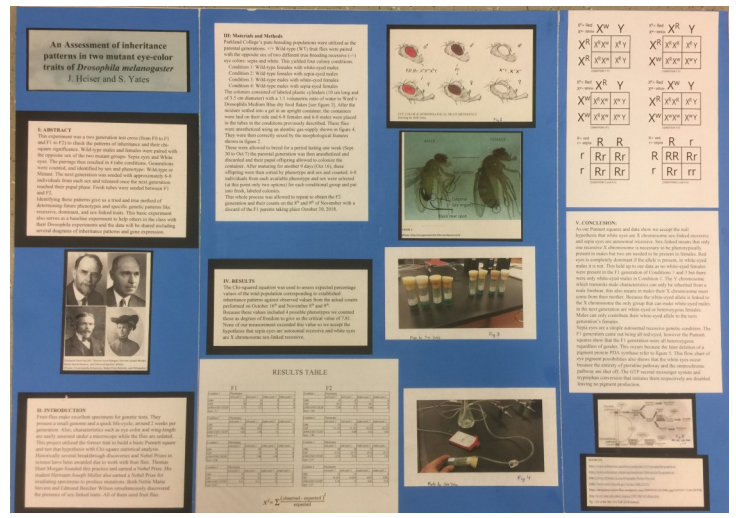


# Research Projects BIO141



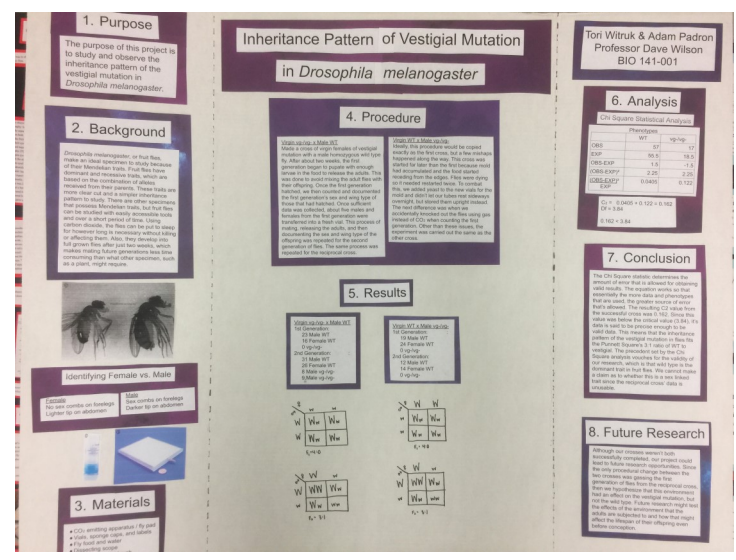
## Wild Type *D. melanogaster* Eye Pigments: Examining Absorbance Spectra and Light Sensitivity

## An Assessment of Inheritance patterns in two mutants eye-color traits on *Drosophila melanogaster*



## Ideonella Sokaiensis

## Inheritance Pattern of Vestigial Mutation in *Drosophila melanogaster*

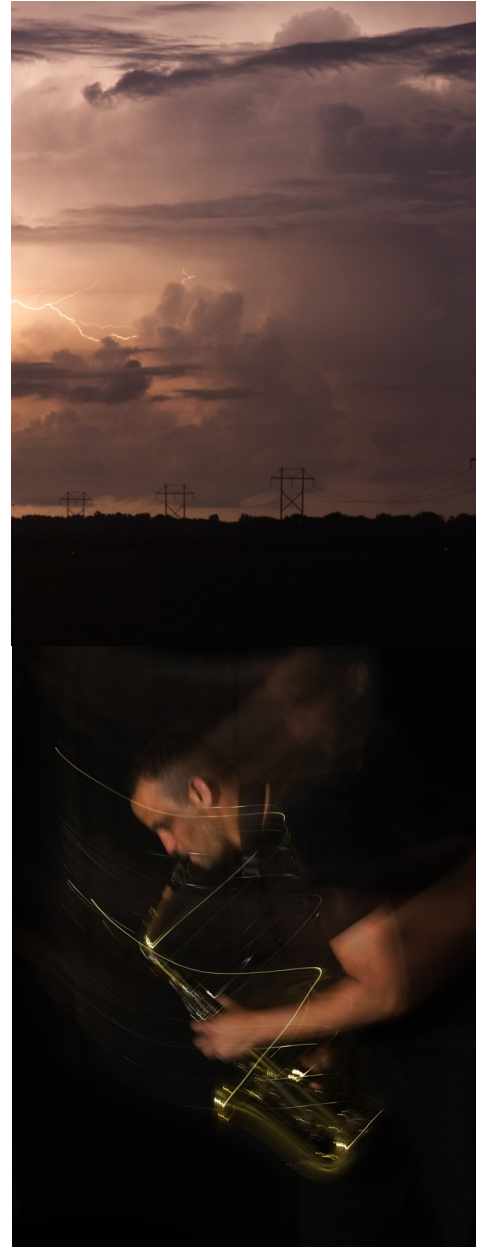


## Manny's Summer Photography Class and Wyoming Trip, *by Manny Rodriguez*

One of my big hobbies is photography. When I have time, one thing I do to relax and enjoy a day is go to a park or honestly anywhere and take photos. I can spend hours outside just walking and taking photos of random things. As an example, during thunderstorms, while most people would go inside to stay safe, I just go outside with my camera and just try to capture a cool photo of a lightning. To the right, there is an example of the photos I took this summer during a lightning storm.

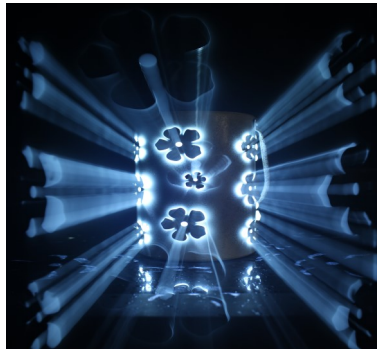
My interest in photography started when I went to Guatemala in 2016. I bought a nice camera for my trip because I wanted to take great photos of volcanoes. And as every naïve person, I thought that the reason my photos were not good before was because of the camera and not the user. However, my tour guide in Guatemala was an amateur photographer and when he saw my camera he thought I was an amateur photographer also. It did not take him long to realize how far I was from amateur. But instead of judging me, he offered me photography lessons (free of charge) so we spent a few hours every day and night learning how to use the camera and taking photos. After ten days in Guatemala working with him, taking photos day and night, I was closer to being an "amateur" photographer., and since then I just enjoy taking photos.

This past summer I started to learn to play the saxophone ( I never play any instrument before) and I took a road trip through Yellowstone and the Grand Tetons. So I wanted to share some of the photos I took while in Yellowstone and the Grand Tetons.



This summer, in addition to teaching the online section of CHE100, I decided to spend some time improving my photography skill. So I took a digital photography class here at Parkland College. Overall I learned a lot in the class, although I would say the expectations in Natural Sciences are a lot higher than in other departments. The first day of class, the instructor answered the questions “Do we need a camera for this class?” or “can I use my phone as my camera?” easily every ten minutes. We were told to buy a book, which we never used or referenced to (I actually read it and it was really good) and we were provided with a syllabus from the Spring semester which never got updated to be a summer syllabus. We never got a summer schedule, so we used the spring schedule as a template and we would just ask everyday what was due next.

Anyways, one of the projects was to take photos of fireworks during the fourth of July. I initially thought that it was just going to be a hassle as I didn’t want to drive anywhere nor wanted to deal with people nor traffic. However, I actually had a great time taking photos of light using low shutter speeds. It was a little tricky at the beginning to figure out the setting that would work best for my camera to get cool firework photos, but to my surprise, I was able to get some really cool photos of fireworks. After working with fireworks, I got really into taking photos of light-emitting items using low shutter speeds and for my final project, I based my “exhibition” on light photography, which is basically taking photos of light-emitting items in motion at night and make them look like something else. Here are some examples of the photos I took this summer. I learned how to take portraits and other commercial photos, but I think the light photos are cool =)!



# Holiday Treats

*If you would like to try some of your coworker's favorite recipes of the holidays, here are some examples!*

## Dave's No-Bake Cheesecake

### Ingredients

8oz cream cheese  
1/3 cup sugar  
1 cup sour cream  
2 tsp vanilla  
8oz cool whip

Mix together all these ingredients with a blender and spread into a graham cracker pie crust. Do not try this with lite ingredients – especially the cream cheese!

## Chelsea's "Lace Cookies"

### Ingredients:

1 cup quick oats  
1 cup sugar  
1 cup chopped pecans  
2 tablespoons flour  
1 teaspoon baking powder  
1 teaspoon salt  
1 beaten egg  
1 teaspoon vanilla extract  
1 stick of melted butter

Stir all ingredients into the melted butter. Drop ½ teaspoon batter onto a foil-lined cookie sheet about 2 inches apart (they spread!)  
Bake 350 degrees 8-10 minutes until golden brown. Let cool on the foil, peel, and enjoy!

## Sheryl's Mulled Cider

### Ingredients:

1 gal cider  
4-5 sticks whole cinnamon  
1 Tablespoons whole cloves  
1 Tablespoons whole allspice  
2 pieces whole mace (I can't ever find whole mace so I just do 2-3 sprinkles of ground mace-very scientific.)  
2 cups brown sugar (Every time I make it I cut back on the sugar-I think I'm down to ~0.5 cups)  
0.5-1 fresh lemon cut into slices

Put sugar and spices in the basket of a coffee urn that has NEVER been used for coffee. Pour in the cider making sure all the sugar dissolves. Add the lemon slices to the basket. Plug in and enjoy when hot. Make sure you save a cup for Karen.

You can put the cider, sugar, and lemon slices in a kettle or crockpot with all the spices except cinnamon tied cheese-cloth. Heat slowly and simmer 20 minutes if you don't have a coffee urn.

## Puerto Rican Holiday Treats

**Puerto Rican Egnog:**  
Coquito (Vanilla): [recipe](#)

**Puerto Rican Coconut Pudding :**  
Tembleque: [Recipe](#)

**Puerto Rican Egnog:**  
Coquito(Chocolate): [recipe](#)

**Puerto Rican Rice Pudding:**  
Arroz on Dulce: [Recipe](#)

**Puerto Rican Shortbread Cookies:**  
Polvorones: [Recipe](#)

