Note from the Editors:
A big congratulations for everyone who passed their candidacy exams, comprehensive exams, and thesis defenses this past spring! As is the circle of life, we’re getting ready to welcome some new students in just a few weeks! Keep a look out for the Orientation schedule below. As we move into late summer, we’ve got some great articles in this edition about community events, yummy recipes, summertime science, and more. A big thanks to all the grad students who contributed to this edition. If you’re interested in getting involved, keep a look out for an email about signups in the fall. Until then, stay cool out there! -The LTS Editors

Summer Events in Hershey & Harrisburg
Aug 5–8: Friends of the Hershey Public Library Annual Book Sale
Aug 19, 26: Chess Club (1pm, Hershey Public Library)
Aug–Sept: Harrisburg University Summer Concerts Series (Riverfront Park)

GSA Student Orientation Events (Aug 14-18)

<table>
<thead>
<tr>
<th>Event</th>
<th>Food (thank Grad Ed!)</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday: Scavenger Hunt (6-7pm)</td>
<td>Simply Greek</td>
<td>College of Medicine</td>
</tr>
<tr>
<td>Tuesday: Ice Cream Social (7-8pm)</td>
<td>Cubby’s Ice Cream</td>
<td>293 E Main St, Hummelstown</td>
</tr>
<tr>
<td>Wednesday: Bowling (6-9pm)</td>
<td>ABC East Lanes</td>
<td>1001 Eisenhower Blvd, Harrisburg</td>
</tr>
<tr>
<td>Thursday: Drinks with Faculty (6-9pm)</td>
<td>Tattered Flag Brewery</td>
<td>1 S Union St, Middletown</td>
</tr>
<tr>
<td>Friday: Picnic (6-8pm)</td>
<td>Panera Bread</td>
<td>Shank Park Pavilion</td>
</tr>
</tbody>
</table>
Featured Articles

Some Good News!

You Can’t Spell Community Without U and I by Rachel Kang............................................................... 3
Good News and Hopeful Headlines by Carli King.................................................................................. 3

This Season in Science: Summer

Dangerous Plants in PA and How to Avoid Them by Stephanie Baringer............................................. 4
Sweet as Summertime: The Health Benefits of Some Favorite Fruits by Carli King................................. 6
How do We Talk About Humidity? by Jackson Radler .......................................................................... 7

Science in the News

Are Your Allergies Getting Worse Every Year? Try Yoga by Paige Bond............................................. 7

Curated Playlist:

lo-fi Hip Hop/Jazz: Beats to Relax/Study/Perform Research To by Anthony Habib Rahawi ............... 9

Summer Recipes:

Watermelon Feta Mint Salad...................................................................................................................... 9
Cherry Fluff (Pink Salad).......................................................................................................................... 9

Scientist Social Media Spotlights.......................................................................................................... 10

Puzzles & Games.................................................................................................................................... 11
Some Good News

You Can’t Spell ‘Community’ Without U and I
By: Rachel Kang

As someone who hates stretching before a workout, yoga has been something of a godsend to my tight muscles and stiff joints. These days, there are several free resources like YouTube tutorials or apps like DownDog for people wanting to incorporate some flexibility into their fitness routine. However, I have always felt that something was missing when I was doing yoga by myself. Being in a yoga class and listening to each other’s breathing throughout the practice, reminded me that I was not alone. Everyone there was trying to find a moment of peace amongst the chaos in their lives, and I missed that sense of community. That’s when I found commUNITY Yoga Space.

CommUNITY Yoga Space is a yoga class located in the heart of Midtown in Harrisburg at 1423 N. 3rd Street Harrisburg, PA 17102, very close to the Midtown Scholar. They offer several different classes ranging from an easy gentle morning stretch to start the week to a more intensive yoga session meant to increase your flexibility and build a relationship with your body. Right now, they are hosting outdoor yoga classes by the Susquehanna River that not only helps rejuvenate your body, but also helps you feel a better connection with nature. The best part though is that every class is pay-what-you-can, which makes it so accommodating for that stipend budget.

Walking into my first class, I was nervous about being the odd one out. I'm not particularly flexible and will usually modify the exercises to make the poses easier for me. All my worries eased as one of instructors began burning sage and cleansed the area of bad energy prior to the start of class. Even if you are someone who does not put much stock in bad vibes or track when Mars is in retrograde, this small action reassured me that this practice was for me and what I needed it to be.

Exercise, for me, is always a group activity. Even when I’m out on a run, I love being able to wave to my neighbors or listen to my favorite podcast just to get the feeling that I’m not alone. It was important for me to find a space where I could still feel that sense of community with my yoga practice and not break the bank doing it. CommUNITY yoga was the perfect place for me, and I hope to see you one day too!

Hopeful Headlines
By Carli King

In today’s world of instant access to news and information, it can be easy to get overwhelmed by the news and stressed by headlines. “Doomscrolling” is a term to describe the act of obsessively reading bad news, despite the onset of negative emotions. In fact, studies have linked poor mental health periods to news exposure during negative or traumatic events. Protecting yourself from bad news can be difficult, and nearly impossible. Some studies recommend selective news engagement or watching news at specific times of the day with a plan in place to lift your mood after consuming news. Others have recommended engaging with news outlets that make it a priority to report at least one piece of positive news per piece of negative news.

Good Good Good is a newspaper that highlights good news across the world, celebrating the people, ideas, and movements that make
the world a better place. You can follow them on Instagram @goodgoodgoodco for a variety of good news posts to add to your feed or check out their website for good news by topic. They offer a free daily good news newsletter sent to your email or a subscription to their monthly newspaper. As if all of that wasn’t enough good news, they offer compilations of the best newsletters, sustainability newsletters, and mental health newsletters to increase access to necessary resources.

Naturally, most of my favorite good news stories revolve around good news in science. Here is a list of my top 5 favorite recent good news stories in science:

1. #PatientsNotPatents: John Green Inspires Action For Johnson & Johnson TB Drug
2. Namibia is Ahead of Schedule in Targets to End HIV/AIDS Epidemic
3. 41 Countries Implement Mental Health & Resiliency Training for Healthcare Workers
4. This African Startup Uses Plastic Waste to Build Affordable Housing
5. 25 Words About Climate Change You Should Know

There are so many good news stories out there. Unfortunately, they often do not make it on to mainstream news outlets. Following Good Good Good is guaranteed to help you see the good in people and the world around you.

This Season in Science
Dangerous PA Plants: How to Avoid Them
By: Stephanie Baringer

Summer is the season of exploring the great outdoors – hiking, swimming, biking, oh my! It’s not all fun and games though, as a recent walk through some tall grass reminded me. It’s important to pay attention to the surrounding plants, or else you might leave your fun excursion with a mysterious skin irritation. Here is a sampling of dangerous plants you might encounter around Central PA, how to identify them, what makes them dangerous, and what to do if you encounter them.

Poison ivy, poison oak, and poison sumac may be the most common plants outdoors people are told to look out for, as they grow in wooded areas throughout the U.S. The plants are closely related; all are in the genus Toxicodendron. The saying “leaves of three, let it be” refers to the leaves of poison ivy, which has tear-shaped leaves, often with jagged edges, and in clusters of three. A reliable way to identify poison ivy is by looking for the middle leaf’s stalk, which is longer than the side leaves that have no stalks at all.

Poison oak looks similar to poison ivy, sharing the characteristic 3 leaves, but the leaves have lobed, rounded edges, resembling white oak leaves (hence the name). Poison oak leaves are typically hairy on both the top and bottom. Poison ivy and poison oak can both be found growing as vines or shrubs.

Poison sumac tends to grow in more wet areas than poison ivy and poison oak and is considered more allergenic, with a rash lasting weeks after exposure. It grows as a small tree, and the leaves consist of 7-13 leaflets. Leaves have smooth edges that...
come to a point, with reddish colored stems.

All members of *Toxicodendron* produce an oily resin called urushiol, giving the leaves a shiny appearance. Urushiol causes an allergic reaction in the form of an itchy rash on our skin within 24 to 72 hours. A quick science note about urushiol-induced contact dermatitis, which occurs with the *Toxicodendron* plant exposures – the reason for this reaction lies at the cellular level. Once urushiol penetrates the top layer of your skin, it binds to macrophages, which in turn secrete inflammatory molecules. In response, T cells localize to the area and trigger a full immune response.

So what should you do if you suspect you came in contact with poison ivy, poison oak, or poison sumac? Wash your skin with soap and water as soon as you are able to. Urushiol can stay on surfaces for extended periods of time, so it is best to wash your clothes before other become exposed. If you develop an itchy rash, you can use cortisone cream, calamine lotion, and/or antihistamine medication.

Giant hogweed is an invasive noxious plant that thrives in open areas in PA. It grows up to 15 feet tall with reddish-purple splotched, hollow stems with bristle-like hairs, and large leaves that resemble parsnip. From May to July, the plant blooms with white flowers that cluster in a reverse umbrella shape. Giant hogweed produces a toxic sap that, when exposed to sunlight, causes skin lesions and burns. The sap contains compounds called furanocoumarins that react with DNA bases in the presence of UV light, preventing your skin from protecting itself from sunlight and resulting in a very bad sunburn. If you come into contact with giant hogweed, wash the affected area immediately and protect your skin from sunlight to prevent further reactions.

Poison hemlock is also an invasive noxious plant that appears similar to giant hogweed; it grows to be about 9 feet tall with smooth and waxy purple splotched stems and glossy fern-like leaves. Like giant hogweed, it thrives in open, disturbed areas. From May to June, poison hemlock also blooms with white flowers, though in smaller bunches than giant hogweed. Unlike the other plants outlined here, contact with poison hemlock does not result in skin irritation in most people; however, ingesting hemlock can be fatal – in fact the Ancient Greeks used poison hemlock extract to execute criminals. Coniine, the toxic compound in poison hemlock, blocks nicotinic acetylcholine receptors, which control muscle contraction, potentially resulting in suffocation. To prevent exposure, it is best to not eat unfamiliar plants on your hike, but if you do suspect ingestion, contact Poison Control immediately. A more detailed differentiation between these weeds and other look-alikes can be found here.

Stinging nettle, also called the common nettle, are known for their stinging leaves and are found near streams and along trails. Nettles can grow up to 6 feet tall but are more commonly no bigger than knee height. Stinging nettles stems are slender with thin leaves that have toothed
edges. Both the stems and leaves have stinging hairs that cause a sharp and sudden pain if they come in contact with the skin. These hairs inject a mix of acetylcholine, formic acid, histamine, and serotonin into the skin, which causes an itchy, burning rash with small blisters that can last up to 12 hours. If you are exposed to stinging nettles, wash the area with soap and water as soon as you are able to in order to remove the nettle hairs. If needed, pain and itching can be resolved by applying a moistened cloth or ice pack to the area.

This is my no means a comprehensive list, so protect yourself and your pets by checking out other resources online (such as this) before you head out into the wilderness this summer!

**Sweet as Summer: The Health Benefits of Some Favorite Fruits**

By Carli King

Summer is here, which means so are backyard barbeques, picnics, and local farmers markets. No summer celebration is complete without a fruit salad. To assist with making the tough decisions regarding what to buy from the farmers market or what fruits to add to your dinner, here are some little-known health benefits for some summer staples.

**Watermelon**

While we can all agree that a summer picnic isn’t complete without watermelon, not everyone is aware of its many health benefits. This may come as no surprise considering water is in its name, but 92% of a watermelon is water, making it the perfect snack to beat the heat and stay hydrated. Beyond water, watermelon contains lycopene, an antioxidant responsible for its bright red color. Lycopene has been linked to many health benefits including a decreased risk of cancer, heart disease, and eye conditions. Additionally, watermelon is a source of vitamin A, vitamin B6, vitamin C, and potassium. These essential vitamins and mineral are important for skin and eye health, strengthening the immune system, and nerve function. Other benefits include maintaining a healthy weight, relieving muscle soreness, aiding skin health, improving digestion, and managing blood sugar.

**Cantaloupes**

Like other melons, cantaloupe contains carotenoids, folate, vitamins, and minerals that have been linked to multiple health benefits. Carotenoids are efficient antioxidants that not only help maintain eye health and function, but are responsible for the orange color of a cantaloupe. Folate, the natural form of vitamin B9, is important for general health. Potassium, an essential mineral, promotes healthy heart function. Vitamins A and C are abundant in cantaloupe; in fact, one cup of cantaloupe contains 106% of the vitamin A and 95% of the vitamin C daily values. Vitamin C has been shown to boost the immune system and promote brain function and healthy skin. Vitamin A is equally as important and has been shown to play a role in healthy teeth, skin, bone, and mucous membranes.

**Honeydew**

Honeydew is a source of natural sugars, vitamins, and minerals. Like watermelon and cantaloupe, honeydew is a good source of vitamin C and potassium. In fact,
One cup of honeydew contains 53% of the vitamin C and 12% of the potassium daily values. Honeydew also contains copper which helps with skin cell regeneration to promote healthy skin and vitamin B which helps the body get rid of toxins.

Peaches
Beyond their sweet taste, an average peach contains only 68 calories, 2 grams of fiber, 1.3 grams of protein, and moderate amounts of vitamin C, vitamin A, and potassium. Peaches have been shown to improve heart health, digestion, immune system strength, healthy eyes, and smoothen skin. Additionally, the plant-based polyphenols and prebiotics found in peaches have been linked to decreasing inflammation which decreases the risk of many chronic diseases.

Strawberries, blueberries, blackberries...oh my!
If you need more reasons to eat berries beyond their incredible taste, berries are berry healthy!

Strawberries, while low in calories and sugar, are packed with nutritional benefits. Shockingly, strawberries are loaded with vitamin C; in fact, eight medium strawberries can provide 160% of the daily recommended value – more than an orange! Like other fruits, strawberries have many antioxidants. The major antioxidant in strawberries is anthocyanin, responsible for their bright red color. Beyond antioxidants, strawberries contain fiber, vitamins, and minerals, including manganese, potassium, and folate. Eating strawberries can help improve brain health, strengthen the immune system, protect your heart, and reduce inflammation. Blackberries are a great source of vitamin C, vitamin K, and manganese. Vitamin K is crucial for blood clotting and bone health, while manganese plays a role in maintaining energy levels, protecting cells, boosting immunity, and assisting with blood clotting. Beyond these benefits, blackberries also improve digestion and blood sugar levels, reduce inflammation, prevent cardiovascular disease, prevent cancer, and protect brain function. Blueberries also are packed full of antioxidants, vitamins, and minerals. In fact, it has been shown that blueberries can contain between 9,000 to 13,400 antioxidants based on how they are grown. One cup of blueberries contain the following of the recommended daily intake of vitamins and minerals: 24% vitamin C, 36% vitamin K, 25% manganese, and 14% dietary fiber. Eating blueberries can help manage cholesterol and blood sugar while reducing blood pressure. Overall, it’s hard to go wrong with any of these delicious summertime fruits, so don’t be afraid to take an extra helping of that fruit salad. Regardless of the individual health benefits provided by these fruits, it is important to eat a balanced diet

How Do We Talk About Humidity?
By: Jackson Radler
Humidity is an important factor in human comfort. It’s what people in Arizona are always talking about when they say ‘but it’s a dry heat’. Today we’re going to dive into the different ways humidity can be measured, and what it means for your hot summer days.

Humidity is the concentration of water vapor in the air, which seems simple enough, but there are multiple ways to express this measurement. One way is with relative humidity: how much water vapor is in the air proportional to how much water vapor the air could hold. At a certain point, air becomes saturated with water vapor, meaning it can hold no more. For example, 50% relative humidity means the air is holding half of the total water vapor it could. As the relative humidity increases, water evaporates more slowly. Our bodies rely on the evaporation of water to keep us cool, and our sweating mechanism becomes less and less effective as humidity increases.

Relative humidity (RH) is a fairly intuitive system, and it’s probably the system you’re familiar with seeing on a weather report. It’s not perfect though, because it doesn’t account for the important role that temperature plays in how water vapor and air interact.
As the temperature increases, air can hold more water vapor. This is like dissolving sugar in water: hot water can hold more sugar in solution than cold water. And just like saturated sugar water growing crystals when cooled down, saturated air that is cooled down will no longer be able to hold all its water vapor, and some of the water will condense into a liquid (better known as rain!).

This results in a curious effect: as a parcel of air warms, the relative humidity will go down even if the mass of water vapor stays constant. With an increased capacity for holding water vapor, the air will feel drier, even if it’s holding the same amount of moisture. This is why indoor spaces become very dry in the winter, unless your furnace has a humidifier system for adding water vapor into the newly heated air.

The importance of humidity and air temperature for human comfort means that relative humidity can be misleading. 70°F and 100% relative humidity will feel much less humid than 90°F and 50% relative humidity. Relative humidity typically highest at night and lowest during the day, but this mostly in response to air temperature. Temperature changes significantly over the course of a day, but water vapor is usually slow to move, even if the relative humidity changes.

A more useful measurement of how humid the air will feel is dew point, which is defined as the temperature a parcel of air needs to be cooled to achieve 100% relative humidity. As the name implies, if the air were cooled to this temperature it would become saturated, and any further cooling would produce dew. Dew point directly affects human comfort: a dew point higher than 65°F will result a muggy feeling. In the Sweetest Place on Earth®, over 50% of days in early August have a dew point above 65°F, resulting in the lovely sticky muggy feeling we all know and love. Nearly 20% of days have a dew point above 70°F, producing an environment that meteorologist have affectionately termed ‘oppressive’.

Another way to express humidity in a useful manner is with Heat Index. This is a system that uses fancy math to combine the air temperature and humidity in to one easily digestible value. By combining both variables, heat index accounts for the effect that temperature has on relative humidity.

**TL;DR:** The next time you’re checking the weather on a hot summer day, skip the relative humidity and instead focus on dew point or heat index. These measures will give a better idea of how it will actually feel outside.
Are Your Allergies Getting Worse Every Year? Try Yoga

By: Paige Elizabeth Bond

Around 25% of the developed world has allergic disorders, causing hay fever, eczema, and asthma\(^1\). Allergies themselves are immune responses against non-infective environmental substances and can range from irritating to life-threatening. The most common form of allergies, dubbed seasonal allergies, is becoming increasingly more common. Unfortunately, one major reason for this is quite predictable: climate change. Due to extreme weather conditions, pollen seasons are lasting longer, prolonging the suffering for millions of allergy sufferers every year. In addition to changing weather conditions, changes within your body can make you more susceptible to allergies. One major contributor to allergies, and one that applies the most to graduate students, is stress. Although the connection between stress and allergies is not clear, it is thought that elevated stress hormones can lead to an exaggerated immune response\(^2,3\). More research needs to be done on a number of inflammatory diseases and their relationship with stress to determine the correlation between the two. This means that although not able to replace a proven allergy medication regimen, honing stress management skills may help with acute allergy symptoms\(^2\). Unfortunately, taking a 10 minute walk outside probably isn’t the best plan when trying to avoid pollen. It would be better to try other stress-reducing exercises and habits, such as getting enough sleep at night, practicing meditation, or going through a yoga routine. This will not cure your allergies, but if you’re an allergy-sufferer like me, any little bit helps.

### Summer Recipes:

#### Watermelon Feta Mint Salad

- 1 small watermelon
- 1 Tbsp lemon juice
- Zest of 1 lemon
- ¼ cup mint leaves, chopped
- 4 oz arugula, chopped
- 3 Tbsp olive oil
- 4 oz feta cheese

Cut watermelon into 1-inch chunks. Add lemon juice, zest, mint, oil, and arugula. Toss to mix. Crumble feta over top. Salt to taste. Drizzle with more oil, add black pepper to taste. Serve fresh.

#### Cherry Fluff (Pink Salad)

- 20oz can crushed pineapple
- 21oz can cherry pie filling
- 14oz can condensed milk
- 8oz frozen whipped topping

Mix ingredients together in a bowl, chill in refrigerator for 2 hours before serving.

Curated Playlist

**Lo-fi Hip-Hop/Jazz:**

*Beats to Relax/Study/Perform Research To*

By Anthony Habib Rahawi

Personally curated playlist: [https://open.spotify.com/playlist/6YYRujWTHFOFEMEHj8Ghfb?si=4e57fa658875408a](https://open.spotify.com/playlist/6YYRujWTHFOFEMEHj8Ghfb?si=4e57fa658875408a)

For a lot of students and researchers, work cannot start until you have the perfect background playlist to get you into a mindset of Zen. There’s nothing like a collection of chill beats to help you relax as you study for Core, habituate your rodents, or organize all of your relevant works for your defense. For many, this state of serenity is achieved through lo-fi playlists and stations. In one sense of the word, lo-fi is an audio term referring to lower sound quality that can be described as “grainy”. However, it is also used more broadly to describe a genre of primarily do-it-yourself instrumental pieces that take inspiration from jazz and hip hop to deliver a relaxing experience. While the genre has been around since the 90’s, the appearance of ChilledCow – now known throughout the world as Lo-Fi Girl – in the mid 2010’s has made lo-fi hip hop/jazz the quintessential study and relaxation genre. With that in mind, what is it about lo-fi instrumental hip hop/jazz that makes it a prime choice for efficient background music?
One of the key qualities of instrumental music that allows it to act as a more effective tool for studying and working is the fact that it is *instrumental*. When listening to music with lyrics, your mind will begin to process the lyrics similar to the way it would when listening to a conversation: you listen to the voice, interpret the language, and decipher the words that are being spoken or sung. Even in the instance where you are not fully paying attention to the lyrics of a song, your brain will still receive the words as a form of stimulus as brain regions such as Wernicke’s area are activated. If you have ever listened to music with lyrics while reading and realized that you did not understand the last few sentences, or if you have tried writing while listening to music with lyrics and accidentally typed out the lyrics, this can be attributed to your brain being unable to fully separate the two sources of language from each other and momentarily merging them into one. With lo-fi and other instrumental genres, this added layer of processing is removed.

As someone who studied classical music, I recognize that classical instrumental music was once considered to be the proper listening choice while studying. However, the lo-fi hip hop/jazz monicker is more synonymous with studying and focusing in modern times. This can be related to the repetitive nature of lo-fi hip hop/jazz. Unlike classical pieces, which are quite dynamic in their themes and motifs, lo-fi hip hop/jazz pieces are focused on themes that are repeated continuously with very few intervening musical phrases. Even lo-fi covers of popular musical selections are primarily constructed by only repeating a section of the chorus or main theme. As a result, the piece does not draw in much attention from consistently changing themes as would a classical piece.

The simplicities of the lo-fi hip hop/jazz genre are what makes it such an effective musical selection for focus-based background music. Its repetitive nature prevents any excessive focus from being placed on it while its instrumental composition frees up cranial language processing centers from being activated by lyrics. However, when you decide to actually focus on the music without any distractions, you can appreciate the music for what it is and listen to it with intent. It is truly a wonder that such a versatile genre can sound so chill.

If you missed it, check out the link at the beginning of the article for a playlist that will hopefully bring you all to serenity during your studies and research.
Scientist Social Media Spotlights

Dr Zoë Ayres (@ZJAyres on Twitter) works as an analytical scientist and as an advocate for mental health and women in science, motivated by challenges she faced during her PhD. She authored the best-selling book "Managing Your Mental Health During Your PhD: A Survival Guide".

Denali Kincaid (@dyaknite on Instagram, TikTok) is a volcano researcher, science communicator, and advocate for young LGBTQ+ STEM enthusiasts. She fell in love with sub-marine geochemistry (underwater volcanos!) during a community college course, and dove headfirst into a life of research. Her work has taken her to Alaska, Florida, and Iceland, and she will be continuing her journey by starting a PhD at Penn State Main Campus this fall. Her TikTok combines humor, LGBTQ+ history and advocacy with volcano-related education to bring the science of volcanoes to the masses. For more information, read this recent LTS article about her.

Sampson the Service Dog (@samppson_dog on Twitter) is a pioneer and ambassador for service dogs in science, and a very good boy. Check out his page to see adorable pictures of him wearing full lab PPE!
Puzzles & Games

Across
2. Eating this can help improve digestion and inflammation
4. Just one cup of this summer fruit can provide your daily dose of vitamins A and C
5. A constant companion that will worsen your allergies
6. The type of news that Good Good focuses on
8. Continuously reading bad news even when it is upsetting
9. Relaxing study music
10. A great way to increase flexibility and connect with the CommUNITY.

Down
1. This family of toxic plants causes skin inflammation
3. Exposure to giant hogweed sap can cause this
7. This orientation event is sure to be right up your alley

To fill in this crossword, follow the link: Summer Issue Crossword - Crossword Labs

Sources:
Are Your Allergies Getting Worse Every Year? Try Yoga