In Conjunction with the American Chemical Society
Student Affiliates at the University of Pittsburgh

CHEM MAJOR NEWS

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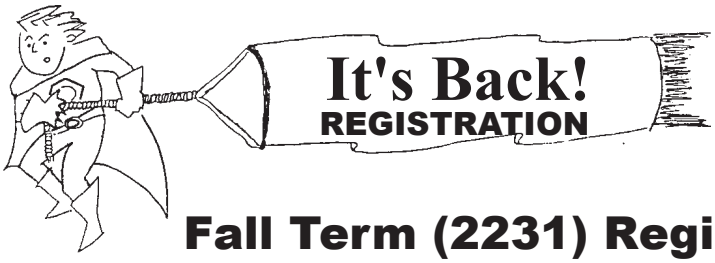

Fall Term (2231) Registration

March 18 Deadline for applying for August 2022 graduation (140 Thackeray Hall).

March 21 Fall Term (2231) Registration begins **based on credits earned**.

You will be notified of your registration time on your my.pitt.edu page.

Advisees who already have a permanent advisor should make their registration appointments with that advisor on or after March 18 for Fall Term (2231).

Advisees who were asked to select their permanent advisors (via an email sent Feb. 4) should schedule their Fall term registration appointment with their new advisor after March 14.

New advisees who have declared chemistry as his or her major within A&S should make an appointment with Dr. George Bandik, Dr. Ericka Huston, or Dr. Michelle Ward after March 14 for Fall Term (2231) in 107 CHVRN.

Departmental Honors? Here's How...

Students who wish to graduate with Chemistry Department honors must satisfy four departmental requirements. Students must have:

(a) an overall QPA of 3.00 or better

(b) a chemistry QPA of 3.25 or better

(c) have completed at least 2 credits of Chem 1710-Undergraduate Research

(d) completed Chem 1711-Undergraduate Research Writing.

Good luck as you strive towards academic excellence!

2021-2022 ACS-SA Officers and Staff

Sarah Kulp- *Co-President*
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Parker Staub- *Co-Vice-President*
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Quincey Jonston- *Green Chemistry Contributer*
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Franco Catalano- *Co-Treasurer*
Paul Ghantous- *Outreach Coordinator*
Jacob Costantino- *Outreach Coordinator*

Visit us at http://www.chem.pitt.edu/acs-sa/

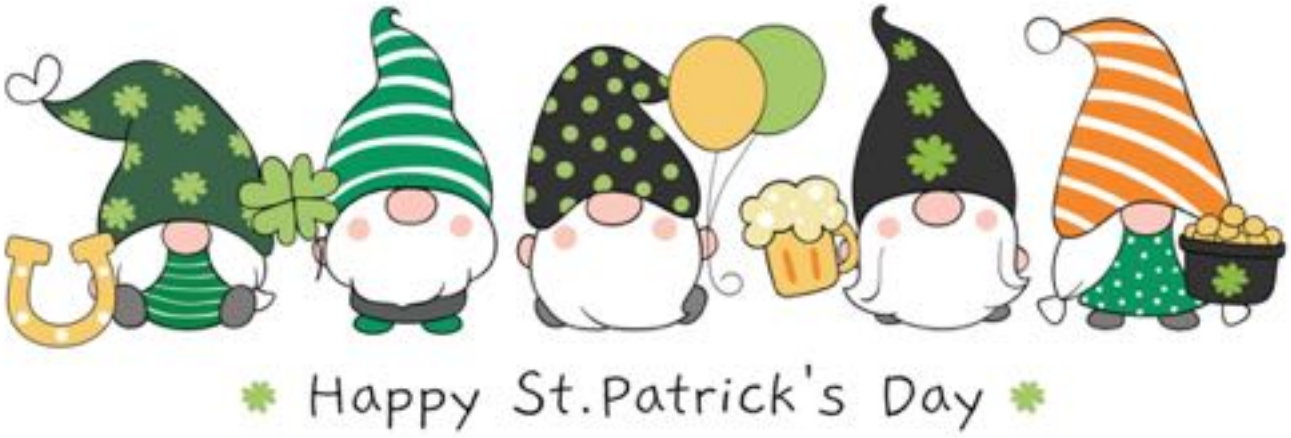
How Do They Do That?

Written By: Jack Levickas, *Chem Major News Editor*

With spring hopefully around the corner and the cold weather fading, I found myself asking the question "How do trees know when to sprout their leaves?" Nearly all life that lives in seasonal regions, like the northeast, have evolved some way of living in both the heat of the summer and the cold of the winter. Birds fly south, bears hibernate, humans turn their heating on, and trees lay dormant. Each of these strategies is effective in surviving the cold winters, but how do they know when winter is coming and when it is over? For animals it's pretty simple, we can feel the temperature change, but trees do not have a central nervous system. In fact, if trees were to simply "feel" the temperature getting warm, then starting budding, those few warm days we get in January that are followed by snow the next week could kill those buds and stop their growth for the entire next year. Instead of feeling for the warmth, trees actually "count" the number of cold days, or "chill hours". Trees have a way of measuring when the temperature is in a certain region (usually around 30-44 degrees F), when enough time has been spent in this region a hormonal response is sent and their buds begin to grow. Trees use this same idea when they become dormant. First, they accrue enough chill hours to become dormant. They then start building resistance to cold temperatures by evacuating water and turning other nutrients into more cold-resistant materials. During intense cold temperatures, chill hours are not accrued. It is only when the temperature returns to that region that they begin counting again. The number of chill hours necessary varies between species and has been adapted over generations of living in a certain climate. This idea is another interesting look into how evolution works. We can see that the plants on the forest floor usually bloom before the trees above them. If they were to

bloom after, the sunlight would already be blocked and that crucial period of growth in early spring would be missed. Similarly, if trees were to bloom too early a late frost could stop their growth for the next year.

For references, please see 107 CHVRN



Green Chemistry: The Discipline

Written By: Quincey J. Johnston *Green Chemistry Contributor*

Since I started writing these articles back in August, I've written mostly about the way that Green Chemistry impacts our everyday life, covering effects on things like the agriculture industry that controls the food that we eat, the pharmaceutical industry that controls our health and wellbeing, and even some of the fun aspects of our lives like the fireworks we shoot off into the sky as a means of celebration.

As I was trying to decide on what I wanted to write about this month, I came to the realization that I had yet to cover the way that the principles of Green Chemistry affect how we study and utilize chemistry as a discipline. So, naturally, I've decided to amend that by taking a moment to provide you with a little bit of history and/or context and some of the actions the community is taking to ensure the prioritization of one of the main reasons we implement and study Green Chemistry in the first place: safety.

One of the main purposes of Green Chemistry is to create inherently safer chemistry, whether that be safer chemistry for the environment or safer chemistry practices for chemists in the field as well as for any consumers who could potentially be negatively affected by the products and services they purchase.

There are six principles of Green Chemistry that prioritize the protection of human health through the prioritization of safe and environmentally-friendly practices: wherever practicable, synthetic methods should be designed to use and generate substances that possess little or no toxicity to human health and the environment; chemical products should be designed to preserve efficacy of function while reducing toxicity; the use of auxiliary substances

(such as solvents, separation agents, etc.) should be made unnecessary wherever possible and, innocuous when used; chemical products should be designed so that at the end of their function they break down into innocuous degradation products and do not persist in the environment; analytical methodologies need to be further developed to allow for real-time, in-process monitoring and control prior to the formation of hazardous substances; substances and the form of a substance used in a chemical process should be chosen to minimize the potential for chemical accidents, including releases, explosions, and fires (Constable et al.**).**

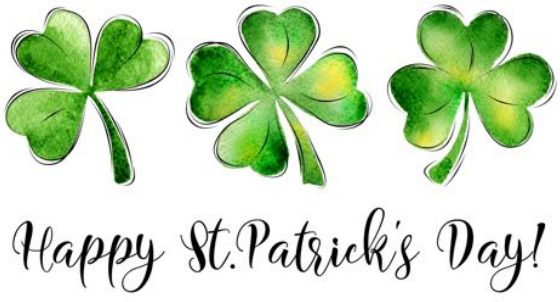
Exactly *half* of the twelve key principles of Green Chemistry involve human health and safety in some way, shape, or form in addition to the safety of the environment itself. These principles, and Green Chemistry in general, work towards creating a culture within chemistry as a whole that not only does no harm but also is conducted in a manner that is conducive to life, and the best way to achieve that is by ensuring that chemists have the training, skills, and culture to support goals designed to end poverty, protect the planet, and improve the live and prospects of everyone, everywhere in the safest way possible (O'Neil et al.).

One of the most significant ways that chemists are working towards reaching these goals while still prioritizing safety is by teaching safe practices and instilling a culture of safety within undergraduate college students like us. Under the Green Chemistry Commitment, sixty-nine chemistry departments pledged to implement Green Chemistry Student Learning Objectives into their curriculum. By introducing this concept into the curriculum and giving students first-hand experience with the reactions and techniques that are central to organic chemistry, professors are essentially able to train the next generation of chemists to be able to think critically about chemistry and find ways to streamline the molecules and processes they're

designing so that there is a significantly reduced impact on human health and the environment. The departments who signed the Green Chemistry Commitment have utilized the Guide to Green Chemistry Experiments for Undergraduate Organic Chemistry Laboratories to promote green chemistry practices being integrated into their chemistry curricula through undergraduate organic chemistry laboratories. This results in the general modernization of organic chemistry labs, and through that collegiate chemistry departments are ab\le to provide their students with a safer approach to chemistry through the reduction of exposure to harmful chemicals that students would have faced (O'Neil et al.).

It's an interesting approach, but it's one that has been shown to work to at *least* expose students to the overall idea and practice of Green Chemistry. And who knows, maybe one of Pitt's very own will revolutionize the field of chemistry in its entirety after the idea of Green Chemistry piqued their interest back in their Organic Chemistry I class.

For References: Please see 107 CHVRN



WHAT YOU HAVE LEARNED IN CHEMISTRY

WORD LIST:

AMY BIHAG
ANION
ATOMIC MASS
ATOMICNUMBER
ATOMIC THEORY
BOILING
BONDING
BROMIDE
CATION
CHEMICAL CHANGE
CHEMICAL REACTION
COMPOUND
ELECTRONS
ELEMENT
EVA TELLO
GOLD
HELIUM
HETEROGENEOUS
HOMOGENEOUS
HYDROGEN
HYPOTHESIS
ION
LEAD
MAGNESIUM
MELTING
MIXTURE
NEGATIVEION
NEUTRONS
OXIDE
PHYSICAL CHANGE
PLATINUM
POSITIVEION
POTASSIUM
PROTONS
SCIENTIFIC METHOD
SILVER
SOLUTE
SOLUTION
SOLVENT
STEVE PAPIN
VALENCEELECTRONS
VALENCY

ACS-SA Schedule for the Spring Term

MARCH	**18**	**Dr. Steve Abramowitch from Bioengineering at Pitt**
	25	**Ms. Christine Puhnaty, JD Chemistry in Law**
APRIL	**01**	**Officer Nominations for ADSE**
	08	**Officer Elections for 2022-2023**
	15	**SENIOR SEND-OFF**

CAMPAIGN! VOTE! WIN!

Have you ever wanted to lead a nationally acknowledged award winning student group? If you aspire to such things why not consider running for an office with our ACS-SA group. We boast some 100 + members and have been recognized for the past 30 years by the national ACS for outstanding programing.

Nominations for our 4 elected positions: president, vice president, treasurer, and secretary will be held on April 8th at our weekly meeting, 12:00 Noon in 150 CHVRN, and elections will be held on April 15th.

Jake Costantino and Paul Ghantous have agreed to stay on as Outreach Coordinators. We will need to fill several positions. We need a Green Chemistry Contributor and a Newsletter Editor and Tech Wizard. If you are interested in any of these positions, please let us know.

SMALL GRANTS FOR YOUR PROJECTS.

The A&S Office of Undergraduate Research, Scholarship and Creative Activity is offering small grants for your individual research or teaching projects, presentations or creative endeavors. These grants of up to $500 are available for the following kinds of expenses:

research/project supplies
travel if you are going to present a paper at a conference or perform in an artistic endeavor.

To apply for a research/creative endeavors or travel/ presentation grant, you must:

1. Find a faculty sponsor for your project.
2. Complete the application form. Include a detailed description of your project or travel plans and budget.
3. Return the signed form to the Office of Undergraduate Research, Scholarship and Creative Activity, 209 THACK.

Happy St. Patrick's Day!!