CHEM MAJOR NEWS

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

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Welcome Back!

Well, it's that time of year again. At the end of every August, the city starts to fill with students. Each fall, there is a brand-new set of ambitious, excited young adults ready to tackle another semester! To the entering class of 2023, Pitt is a wonderful place, and I hope you are settling into your new home. It's here where you will grow more than you ever thought possible. A word or two of advice: This is your time. Put yourself out there and try new things. Follow your heart and explore the world around you. Seize all the possibilities you come across and if you have chance to do something then try it to see if you like it. Remember though, you come first and are the priority in your own life. There will be ups and downs throughout this next year so get ready, buckle up, and let's go!

Wait…hold on! Many students at the beginning of the school year are looking for fun and active organizations to join. If you are interested in science or community outreach, I recommend you check out the American Chemical Society Student Affiliates (ACS-SA). This is an amazing club right here in the chemistry department that reaches out into the community that shows the power of science to kids, gives back to city of Pittsburgh, and even more! Meetings are Fridays at noon in 132 Chevron Science Center. Everyone and anyone are welcome to join!

See you there,

Dale Erikson

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

The Inside Scoop on Research Support

by: Devin Wilcox

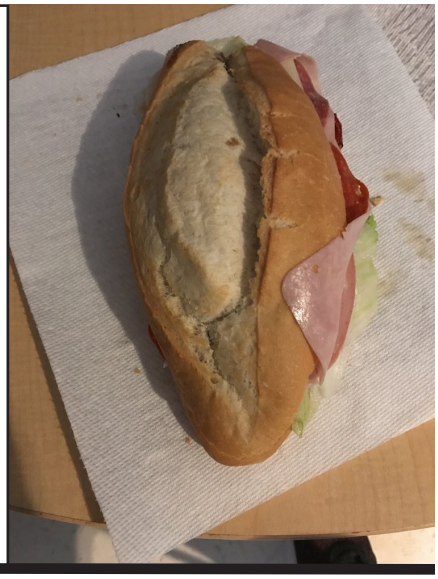
Hello ACS! Thank you for welcoming me into your pages. I am lucky to have spent my post collegiate years in service of three different departments at Pitt interacting with staff, students and faculty to help get the important business of science underway and maintain Pitt's track record of excellence in responding to the needs of our facilities. Under the umbrella of SRSS here at Pitt we have the resources needed for scientists to do their best work. The SRSS contains 12 key organizations which makes Pitt a great place for research by providing our departments with the access to materials and machinery needed. After graduating I began working in the chemistry stockroom which would become the currently named DSS in 2012. I just completed my undergraduate degree in psychology and was given a great opportunity to describe some of the work we do and talk to some of our graduate students and staff.

I am a 2010 alumni of Pitt and my first degree was in U.S. History. My other significant connection to the university is my father, Craig S. Wilcox, a longtime Professor of Chemistry at Pitt, who now works at the Office of Research Integrity. It was in the Chemistry Department that I began working as a temp and delivering campus mail that would lead me to my position today as a Research Assistant II in the Animal Facility. Although controversy surrounds scientific research involving animals, it is important to understand the necessity of the advancements offered by such research and to view scientists with compassion. These days I am occupied with keeping the facility up to standards in both cleanliness and animal welfare. In the following entries I aim to provide a brief look into some of the people in the animal facility doing this work and a description of my work itself. I hope it may pique your interest in biology, neuroscience and animal research.

Coming Soon...ACS-SA Hoagies!!!

Delicious Italian Hoagies from Groceria Merante...Details to come!!!

Please Support the ACS-SA



Green Chemistry

by: **Caitlin Giron**-*Green Chemistry Editor, 2019-2020*

Beginning next month, our new Green Chemistry contributor, Caitlin Giron, will be sharing the latest advances in this important area of science with you. This month we just want to remind you of the principles of green chemistry as shared by a former graduate and Green Chemistry Contributor-Drew Warburton.

Green chemistry is a heavily studied and funded field in science ever since our very own Pittsburgher, Rachel Carson published her extremely successful and influential book Silent Spring, changing the way communities and industries view their impact on the environment for the following decades.[1] Green chemists and engineers are working to take their research and innovations out of the lab and into the board room through the creation of viable industrial products that can be embraced by today's industry leaders including but not limited to, reducing waste, improving energy efficiency, replacing hazardous substances, switching to renewable feedstocks, and designing products which degrade into innocuous chemicals after they have fulfilled their role; however, even with such great advancements in technology and discovery, more than 98% of all organic chemicals are still derived from petroleum.[2]

The Twelve Principles of Green Chemistry[3]

1. **Prevention**—It is better to prevent waste than to treat or clean up waste after it has been created.
2. **Atom Economy**—Synthetic methods should be designed to maximize the incorporation of all materials used in the process into the final product.
3. **Less Hazardous Chemical Syntheses**—Wherever practicable, synthetic methods should be designed to use and generate substances that possess little or no toxicity to human health and the environment.
4. **Designing Safer Chemicals**—Chemical products should be designed to affect their desired function while minimizing their toxicity.
5. **Safer Solvents and Auxiliaries**—The use of auxiliary substances (e.g., solvents, separation agents, etc.) should be made unnecessary wherever possible and innocuous when used.
6. **Design for Energy Efficiency**—Energy requirements of chemical processes should be recognized for their environmental and economic impacts and should be minimized. If possible, synthetic methods should be conducted at ambient temperature and pressure.
7. **Use of Renewable Feedstocks**—A raw material or feedstock should be renewable rather than depleting whenever technically and economically practicable.
8. **Reduce Derivatives**—Unnecessary derivatization (use of blocking groups, protection/ deprotection, temporary modification of physical/chemical processes) should be minimized or avoided if possible, because such steps require additional reagents and can generate waste.
9. **Catalysis**—Catalytic reagents (as selective as possible) are superior to stoichiometric reagents.
10. **Design for Degradation**—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.
11. **Real-time analysis for Pollution Prevention**—Analytical methodologies need to be further developed to allow for real-time, in-process monitoring and control prior to the formation of hazardous substances.
12. **Inherently Safer Chemistry for Accident Prevention**—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.

1. *History of Green Chemistry. https://www.acs.org/content/acs/en/greenchemistry/what-is-green-chemistry/history-of-green-chemistry.html (accessed August 11, 2016).*
2. *Green Chemistry Definition. http://www.acs.org/content/acs/en/greenchemistry/what-is-green-chemistry/definition.html (accessed August 11, 2016).*
3. *Principles of Green Chemistry and Green Engineering. https://www.acs.org/content/acs/en/greenchemistry/what-is-green-chemistry/principles.html (accessed August 11, 2016)*

2201 Tentative ACS Fall Schedule

August

30 2019-2020 Officer's Meeting

September

6 Welcome to the New Term – *with Pizza*

13 Introduction to the Career Center – *with Ms. Emily Bennett*

20 Hello from Pre-Professional Advising – *with Ms. Andrea Abt*

27 Thinking about Graduate School – *with Professor Steve Weber*

October

5 Fall Term Birthday Party!

11 National Chemistry Week Preparation

18 All About Registration – *with Dr. George Bandik*

25 Pumpkin Painting on the Patio!

November

1 Green Chemistry – *with Dr. Ericka Huston*

8 Meet Our New Faculty – *with Dr. Tim Tseng*

15 Looking for a Job – *with Nikki Hillard, Recruitment Advisor*

22 Fall Term Awards Ceremony

29 Thanksgiving Break

December

6 Good Luck with Finals – No Meeting

Have a wonderful break and Happy Holidays!

American Chemical Society

Student Affiliates, University of Pittsburgh

Membership Application

This is a powerful professional organization for the benefit of individuals interested in chemistry and related fields. Our organization offers exciting extracurricular activities and many outstanding opportunities for our members, including:

1. **WEEKLY MEETINGS**-to plan activities, provide interesting speakers, discuss ideas, and keep students aware of what is happening in the scientific community.

2. **ANNUAL TRIPS**-Each year we sponsor (a) trip(s), to external chemistry environments, as well as for social enjoyment. Significantly reduced rates are available to active members. In the past few years we have traveled to New Orleans, Atlanta and New York.

3. **PROFESSIONAL NETWORKING**-Our organization has many opportunities to make contacts with professionals in both the scientific industry and academia. Student affiliates also have the opportunity to join the National ACS.

4. **SOCIAL ACTIVITIES**-We sponsor many activities throughout the year just for fun.

Our meetings are held every Friday at 12:00 noon in Room 150 Chevron Science Center. To join, complete the application form below and come to one of our meetings. Our first meeting will be September 6, 2019 but you may join any time throughout the year.

Name: _____

School Address: _____

_____

Phone: _____

Major: _____ Year in School **Fr.** **So.** **Jr.** **Sr.**

E-mail: _____

May we include your name, number and e-mail on the published phone list? **YES** **NO**

To submit this form by mail, send it to ACS-SA, Box 24, Chevron Science Center, University of Pittsburgh, Department of Chemistry, Pittsburgh, PA 15260. Be sure to include the $15.00 dues (make checks payable to the University of Pittsburgh). It is possible to be active even if you can not attend the meetings. For more information, see our display case in the lobby of Chevron Science Center.