



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



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February 6, 2015



IT'S THAT TIME!



**IMPORTANT DATES
FOR REGISTRATION**

- February 16** Summer Term Registration (2157) begins for all degree students.
- March 06** Last day to withdraw from an individual course for Spring Term (2154).
- March 8-15** Spring Break!
- March 20** Deadline for August 2015 (2157) graduation applications in 140 Thackeray Hall.
- March 23** Fall Term (2161) registration begins and your on-line registration appointment will be sent to you based on credits earned.

Advisees who already have a permanent advisor should make their Summer registration appointments with their advisor on or after February 11th for Summer Term (2157).

Advisees who will be asked to select their permanent advisors (via an email to be sent February 2nd) should do that after February 09th. See Dr. George C. Bandik or Regina Mahouski in 107 Chevron Science Center.

New advisees who have declared chemistry as their major within A&S should make an appointment with Dr. George C. Bandik, Dr. Ericka Huston for Dr. Michelle Ward after February 09 for Summer Term (2157) and March 02 for Fall Term (2161) in 107 Chevron Science Center.

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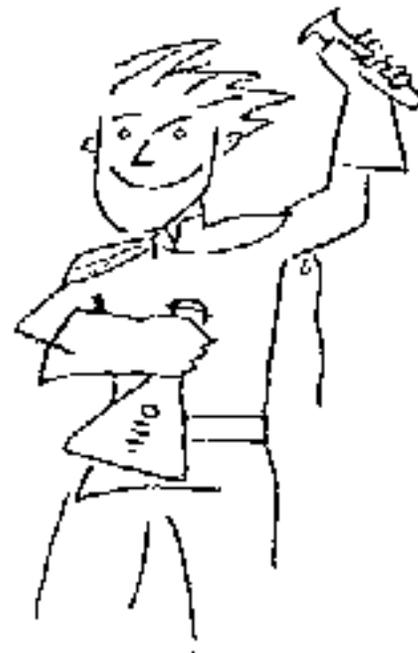
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ACS-SA Spring Term Schedule FEBRUARY

February

- 06 Science Education at Pitt
with Dr. Margie Schermer
- 13 Meet Our Faculty
*with Dr. Joe Werne, Dept. of Geology
and Planetary Science*
- 20 Chemical Trivia with Pizza
- 27 Polymer Chemistry at CMU

Happy Valentine's Day





Green Chemistry

by: Raissa Berry, Green Chemistry Contributor



A Plan for Radioactive Waste Disposal

As of 2014, over 11% of the world's electricity is provided by nuclear power. Since the 1950s, nuclear power has been on the rise as a clean-air source of energy, as it is emission free and produces no greenhouse gases. In comparison to other electricity sources such as coal and natural gas, it produces less than half the carbon dioxide emissions. Nuclear power has also been called the most reliable electricity source, based on its ability to provide large amounts of on going power that can be dispatched on demand. From nuclear power, radioactive waste arises and the responsibility of producers to safely contain and eliminate it. A plan for storage of this radioactive waste, however, has been largely disputed amongst leaders around the world.

In the United States alone, there are over 100 nuclear reactors that account for about 19% of electricity generation. These nuclear power plants accumulate about 2,100 metric tons of waste per year. Originally, the plants were predicted to operate for 40 years, but have instead been granted 60 years and are pending approval from the Nuclear Regulatory Commission (NRC) to extend operation for an extra 20 years. In 50 years alone, nearly 70,000 metric tons of waste has been generated and remains at these reactor sites.

Meanwhile, in 1998, the federal government was supposed to move this waste to a permanent repository for storage. However, according to a report by the Government Accountability Office (GAO), these 100+ reactive sites, located in 75 locations in 33 states, are holding about 70% of waste in pools 40 feet deep and the other 30% of waste in dry storage. If the plants remain operational for their recently petitioned 80 years, the GAO estimates that they will generate around 139,000 metric tons of waste or more. With storage pools filled to capacity, plants must move waste to dry storage and the NRC, along with the government, are pressured to finally come up with a storage plan.

To do this, the Department of Energy (DOE) was created and proposed a plan in 2013 for the federal government to begin to move waste to two different storage facilities by 2025, which would eventually be moved to two final repositories. There has also been controversy over Obama's decision to cancel construction of the Yucca Mountain repository in Nevada. Many argue that without congressional action, a much needed decision and plan for future nuclear waste storage will not be reached. Nonetheless, with the Republican shift in Congress, it is believed that these issues will resurface along with a strong pressure to finally move forward with storage arrangements.

References:

<http://www.nei.org>

<http://www.world-nuclear.org>

<http://cen.acs.org/articles/92/i50/Another-Chapter-Saga-Radioactive-Waste.html>

Trouble with the Keurig

By: *Keith Kennedy*



Coffee. I could not have made it this far in the world with out it. What other beverage can allow you to finish that 10 page paper that you've had all semester to finish, in one night? We live in an exciting era of technological advancement in the brewing of coffee. When else could you brew a single cup of delicious, caffeine packed coffee in minutes? Of course, I am referring to the wondrous machine known as the Keurig.

I've owned a Keurig since the day I started college, and have used it regularly. My Keurig and I have made it through thick and thin. I'm sure you can understand my dismay when one day, after two and a half years of service, my Keurig began to malfunction. The problems started with increasingly smaller and weaker cups of coffee. It got to a point where my long time friend was completely useless.

After about a month of resorting to instant coffee, I voiced my frustrations to my father. My father, being the brilliant chemist that he is, suggested that I try running vinegar through my Keurig. He hypothesized that the loss in function was due to a buildup that water could not dissolve, but perhaps an organic solution could.

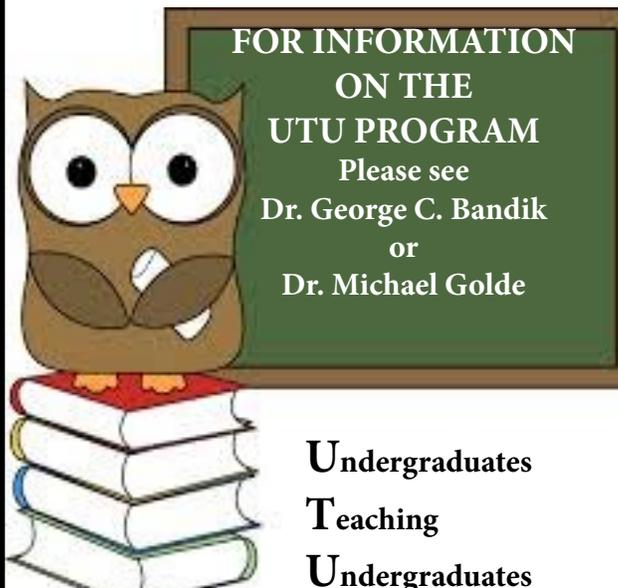
I followed my father's advice and sent vinegar through my Keurig a few times. The change was immediate. After the second cup of vinegar coffee was brewed, the flow rate seemed to be as it was just after purchase. I had to run about a gallon of water through the Keurig before the taste of vinegar was finally gone, but my old friend was rejuvenated.

This problem was not an isolated incident. I found that many of my peers had experienced the same problems with their Keurigs. I shared the method of repair that I used, and in almost every case this procedure fixed the problem. It was not until months later that I found the company, Keurig, has a similar procedure to solve this problem, posted online.

<http://www.keurig.com/support>

To this day, I do not know if my father actually came up the idea on his own or if he took credit for the information posted so visibly online. I may never find out for sure!

**Ever wonder what it is like on the other side of the podium?
Becoming a UTU is great way to find out. As a UTU, you get the chance to teach General, Organic or Analytical Chemistry. It is a great experience, no matter what your career path is!**



**FOR INFORMATION
ON THE
UTU PROGRAM**
Please see
Dr. George C. Bandik
or
Dr. Michael Golde

**Undergraduates
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