

# Newsletter for the Kalamazoo Local Section of the American Chemical Society

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## Chair's Comments

*By Brian Eklov*

We are entering a busy stretch for KACS.



While it may seem a ways off, planning is well underway for National Chemistry Week held on October 8<sup>th</sup>. This is our 30<sup>th</sup> Annual Chemistry Day at the Kalamazoo Valley Museum, and it just may be the crown jewel of the KACS calendar!

We are looking for volunteers to run demonstrations and activities, and I would like to encourage you all to come out and help share some of your enthusiasm for science with our attendees. Last year we had over 1000 attendees participate in over 25 activities, and it was a blast!

Planning is also underway for our annual SciMix gathering later in the year. Stay tuned for details.

## 2016 KACS Executive Officers

### Chairperson

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### Chairperson-Elect

Vacant – Looking for nominees

# 2016 National Chemistry Week

## It is our 30<sup>th</sup> Chemistry Day at the Kalamazoo Valley Museum!

Theme: Solving Mysteries through Chemistry

Date: Saturday October 8, 2016

Time: 12 noon – 4 pm

Come join us for our 2016 National Chemistry Week (NCW) celebration, our 30th such outreach event at the Kalamazoo Valley Museum! Our much-anticipated annual outreach event at the Kalamazoo Valley Museum will be on Saturday October 8 from noon to 4 p.m. This year's theme is "Solving Mysteries through Chemistry" with a focus on the chemistry of fibers and forensics.

Our hard-working collaborator at the Museum, Annette Hoppenworth, is once again looking forward to our participation and successful execution of this immensely popular program. Parents, grandparents, teachers, scout leaders and children are always rewarded with fun hands-on activities, and with safety-tested written materials which they may take to their homes and their schools for encouragement in their science learning – we have all heard of STEM education; this informal science learning experience is a big part of it, at an age when children are scientists in the making – inquisitive and truly curious.

We have a need for volunteers of various skills and ages! Don't worry, if you are at loss for an activity, we have pre-planned forensics science activities and lists of other activities! We can also train you in an activity of your choosing. ***With your help, we are going to make this a fantastic gift to our community!***

### Volunteer Now!

#### Forensics Science Activities:

Doug Williams ([dwilliams@kalsec.com](mailto:dwilliams@kalsec.com))

#### Other activities & training:

Lydia E. M. Hines ([lemhwgh@gmail.com](mailto:lemhwgh@gmail.com))

Brian M. Eklov ([chair@kalamazooacs.org](mailto:chair@kalamazooacs.org)).

# COMMUNITY OUTREACH REPORT

## Caffeine Camp 2016

Earlier this year the WMU Stryker School of Medicine secured grants from the Gilmore, Dalton, and Upjohn Foundations to support a program for 10th grade Kalamazoo public school high school students for “Saturday Science Academies” and “Summer Enrichment Programs.” One goal of the program is to increase the number of under-represented students entering the pipeline for careers in science and medicine. The Program Director is Dr. Cheryl Dickson (Associate Professor of Pediatrics and Associate Dean for Health Equity and Community Affairs at WMed). The Saturday Science Academies occur at the WMed campus and most of the “Summer Enrichment Programs” do as well. In addition, a week-long summer science experience is part of the program in collaboration with Kalamazoo College.

In summer 2016, the science experience program was held at Kalamazoo College and directed by Dr. Laura Lowe Furge (Professor of Chemistry and Associate Provost at Kalamazoo College). The program was held July 26-30 at the Dow science building at the College. Since Dr. Furge is a biochemist with interests in pharmaceuticals and drug metabolism, the week centered on learning about proteins, enzymes, cytochrome P450 enzymes, and drug metabolism.

Largely hands-on, the week’s activities included introductions to enzymes using “Biochemistry is Fun” card arrangements, a “toothpickase” activity (with very cold water – students won’t soon forget that temperature affects rate!), and an exploration of the activity of catalase from vegetables and how different conditions affect activity.

In addition, students also did more sophisticated activities with metabolism of caffeine *in vitro* by human cytochrome P450 1A2; products were analyzed by HPLC with UV detection. Students interfaced with the instrumentation at all levels and analyzed peak areas for paraxanthine and caffeine in comparison to a standard curve. Prior to starting the P450 assays, students learned how to use micropipettes with a microtiter plate pipetting design experience and how to make and use a standard curve. To introduce the concept of chromatography and separation of mixtures, students did simple paper chromatography with markers.

Finally, since we live in Kalamazoo – a hotspot for extractions, students also learned about extraction by extracting caffeine from sodas – a highlight of the week. The isolated final product was identified by melting point analysis (and, yes, students did learn about Kalsec and A.M. Todd – right here in their hometown).

In both the P450 assays and the caffeine extractions, the broader topics of “separation” and “identification” techniques were explored. Students also started learning about how to keep a laboratory notebook and prizes were given on the last day for the best notebooks. My favorite mantra (just ask my students) is “I can’t teach you all the chemistry you will need to learn, but I can teach you habits that all chemists follow;” keeping a laboratory notebook is one of those.

During lunch breaks each day, summer students had lunch in small groups with either undergraduate research scientists doing research in Chemistry or Biology at Kalamazoo College this summer (we have over 20 undergraduate research scientists doing research in Dow this summer!) or with STEM faculty from the College. If you’d like to volunteer your lunch break to join us in summer 2017, please let Laura Furge know. We would welcome sharing of your experiences, insights, and career stories.

Many thanks to the students in the spring 2016 Advanced Biochemistry laboratory course at Kalamazoo College for testing activities, drafting protocols, and preparing some slides for use with the program. A very special thank you to Mr. Mike Walsh, Director of Chemistry Laboratories at Kalamazoo College, for preparing laboratory equipment and space for the experiments.



Program highlights at:

<http://www.kzoo.edu/news/health-career-pipeline/>

<http://med.wmich.edu/news-and-events/news/summer-pipeline-program-fosters-high-school-students%E2%80%99-interest-science-medicine>

## More Tidbits

The next **Great Lakes Regional Meeting** will be held in Fargo, North Dakota June 27 – 30, 2017 at the Holiday Inn. The Kalamazoo Local Section is part of the Great Lakes Region of the ACS and we encourage you to consider attending or presenting at the meeting. The theme is “Sustainability and Energy.”



If you notice a **Free Little Library** (<https://littlefreelibrary.org/>) in your neighborhood please let our National Chemistry Week coordinator, Lydia Hines, know so that she may supply you with some of this year's Celebrating Chemistry publications to place in the box for the patrons; the topic is forensics, or "Chemists solve mysteries." Please contact Lydia at 269-375-7349 or [lemhwgh@gmail.com](mailto:lemhwgh@gmail.com).

Visit our website [www.kalamazooacs.org](http://www.kalamazooacs.org)



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Do you have questions, comments, or would like to contribute to this newsletter?  
Send an email to Christine Pruis, Communication Chair at [ACSkzoo@gmail.com](mailto:ACSkzoo@gmail.com)