

# THE MIDLAND CHEMIST

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## Former ACS President Thomas Lane Supports New Science Lab at a Ugandan High School

*Steve Keinath, Co-Editor, The Midland Chemist*

Editor's note: This article is reprinted, in part, from the November 28, 2022 (Volume 100, Issue 42), issue of *C&EN*, a publication of the American Chemical Society. A version of this article also appeared in the November 25, 2022, issue of *C&EN Weekly Newsletter*, an electronic newsletter provided to members of the American Chemical Society. Nina Notman authored the original article for *C&EN*.

## TEACHERS IN MUKO, UGANDA, WORK WITH ACS'S THOMAS LANE AND TWO NONGOVERNMENTAL ORGANIZATIONS TO ENHANCE SCIENCE EDUCATION



Muko High School in southwest Uganda is constructing a new science building. Once the laboratory building is complete, the school's approximately 420 students will be able to conduct experiments to support and advance their studies in chemistry, biology, physics, and agriculture. Former American Chemical Society president **Thomas Lane** (photo at left) is a consultant on this project.

Two nongovernmental organizations (NGOs) – Agape Community Transformation (ACT) USA and ACT Uganda – took over management of the school in January 2018 and have since modernized its facilities. Changes include the installation of solar cells to provide power to the school for the first time and a rainwater collection and purification system.

The NGOs' current focus is on improving science teaching at the school. Recent countrywide curriculum changes are a key driver. "The Ugandan department of education has pivoted away from rote learning to critical thinking and problem-solving," explains Richard Dolinski, a retired Dow chemist and ACT USA board member.

Muko High School, like many village schools in Uganda, has a very small and basic science classroom. A lack of funds for reagents is an issue, as is the absence of any safety equipment. Until this academic year, the school had taught science only until the first set of national exams, at age 16. The lack of facilities has hurt the students' grades, explains Mathias Atuheire, a chemistry teacher at the school. With the new science building, the students will complete the final 2 years of high school.

The walls of the science building are already constructed, and the roof is being installed. The NGOs are raising funds to complete the building, provide and install the laboratory equipment, and stock the lab with reagents. "Our hope is to have everything done by the beginning of February, which is when everybody will come back to school for the start of the school year," says Susan Waechter, US director of ACT Uganda.

"With this new lab, we are going to do lots of practicals. And with practice before our practical exams, we shall not panic, and we shall excel in them," says Racheal Ntungire, a student who recently completed her first set of national exams at the school. Ntungire, who aspires to be a surgeon, will return to the school to study for her second set of national exams in February. "We hope very soon that we shall begin to produce doctors and engineers like our students are dreaming," says Philip Ntwirenabo, Muko High School's head teacher and chaplain.



Workers construct a new science building at Muko High School in Uganda. (Photo credit: Philip Ntwirenabo / Muko High School)

The science laboratory will include a safety shower and eyewash station. “There’s no running water in this building so they have had to devise a water catch on top of the building so these can be gravity fed,” Lane says. One of his roles in this project is to introduce Atuheire and his colleagues to the ACS and other scientific society resources on the use of personal protective equipment, safety procedures, and how to get the most out of the new laboratory equipment. “The ACS is a real treasure trove of information, and things that we’ve already started to share include best practices for safety in middle school and high school labs and best practices in teaching chemistry,” Lane says.

For more information and to donate to the project, please visit [bit.ly/3XcrHHU](http://bit.ly/3XcrHHU).

**Added notes:** There is a long history with Midland area leaders and Muko High School. Nearly 20 years ago Sue Waechter and her husband (Dow Toxicology) started ACT. Over the years they took over the management of the school. Several local churches have been involved in upgrading the school and the Muko community. Rotary International has been very involved and recently installed solar panels so students could study after dark. Dick Dolinski is and has been involved for a long time and is currently a board member. Tom Lane is currently involved in promotion and fund-raising efforts and connecting Muko High School with resources available through the ACS and other scientific societies.

**MSU St. Andrews Family Astronomy Night, *Mars: The Most Controversial Planet*, December 7**  
**Clare Light, Project/Event Coordinator, MSU St. Andrews**

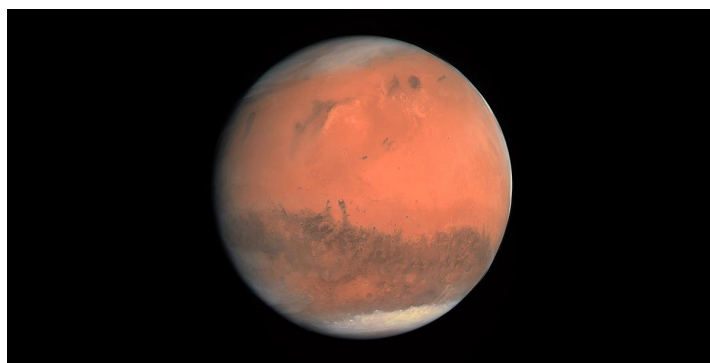


MSU St. Andrews  
MICHIGAN STATE UNIVERSITY

Virtual Family Astronomy Night

**Mars: The Most Controversial Planet**

Join us on Wednesday, December 7, 2022, at 7:00 PM EST via Zoom



*Please register below to receive the Zoom login. You may register up to the presentation start time or during the meeting to join us—time allowed for live Q & A throughout the event. ASL Interpretation during the event. **Please share this event with others who may be interested in attending.***

[Register Here](#)

### **Event Description:**

Did you know that this month, Mars will be closer to Earth than it will be for any time in the next decade? Have you noticed that Mars has been growing steadily brighter all year long, and is now about 25x brighter than last fall? Are you aware that Earth has had more missions to Mars fail than to all other planets combined? Have you heard that three new spacecraft just arrived on Mars as recently as last year, creating a total of a dozen robotic spacecraft currently in operation on or above Mars right now? Join Dr. Stark via Zoom to learn more!

Families with school-age and older children are invited to join us virtually for a presentation focused on the planet Mars. We will share what makes Mars so different from the other planets, how it has become so important for astronomers throughout the centuries, and why it has been so controversial. (Why do we speak of Martians, but not Venusians or Jupiterians? There are good reasons!) We will also summarize some key things that we've learned about the red planet. How is Mars' orbit different? How far away is it? What is it made of? Is it really red? Could it have life? We will answer all of these questions, and more. Just as important, we will also describe how astronomers (and robotic spacecraft) have discovered these things, telling the story of how our understanding of Mars came about.

But there's more: an unusual number of special things are happening in the sky this month. For example, are you ready to welcome brilliant Venus—and speedy Mercury—back to the evening sky? Did you know that all five planets will be visible at the same time for a brief window in December? Have you heard that two of the year's best meteor showers are about to take place? And—saving the best for last—are you aware that at its moment of peak brightness, Mars will actually be “eclipsed” by the Moon? We will help you see all of these things yourself.

*Image credit: [https://www.esa.int/ESA\\_Multimedia/Images/2007/02/True-colour\\_image\\_of\\_Mars\\_seen\\_by\\_OSIRIS](https://www.esa.int/ESA_Multimedia/Images/2007/02/True-colour_image_of_Mars_seen_by_OSIRIS)*



## Another Garden Season Success

*Gina Malczewski, Director and Outreach Committee, Midland Section ACS*

For the eighth straight year, ACS maintained garden space at the Creative 360 Community Garden (which we also now manage), and in 2022 almost 200 pounds of produce was donated! Some of these donations were in-kind, including two large crops of hydroponic lettuce grown at Michigan State University-St. Andrews and used for educational purposes at the “H2-Whoa!” middle school summer camp.

This was the first year of ACS involvement that ALL the plots at the garden were rented; it was the second year we were responsible for a Children’s Teaching Garden, and associated free “Sprouts and STEMs” programming. The latter consisted of five interactive or hands-on sessions on topics from “Fireflies: Living Light” in July to October’s “Pumpkin Party”. Flowers, peppers and herbs were also grown in the ACS greenhouse constructed in 2015 from recycled plastic bottles. The greenhouse also contained hydroponic and vermiculture units.

Produce was donated to the Care Giving Network, the Bridge Store, and SAMS Food pantry, and also used at the “Herbs: Pizzas, Perfumes and Potions” program on September 14.



Lettuce, Broccoli, and Tomatoes at ACS Garden, July 2022  
Photo by Gina Malczewski



The ACS Children’s Teaching Garden at Creative 360,  
July 2022  
Photo by Gina Malczewski

We are grateful to Grandma's Pumpkin Patch and Midland Walmart for donating pumpkins for our final program. A MAYAC (Midland Area Youth Action Council) grant to Creative 360 for garden improvements was used to purchase a walkway to increase handicap accessibility.

Anyone wishing to help or support the Garden and our associated programs next season can contact Gina Malczewski at [reginamalczewski@gmail.com](mailto:reginamalczewski@gmail.com).



Pumpkin Party  
Photo by Dave Stickles

## Winter Solstice 2022

***Vickie Langer, Midland Chemist Co-editor, Midland Section ACS***

Editor's note: The information and images in this article are from the Farmers' Almanac website, [Winter Solstice 2022: When Is It, And What Is It?](#)

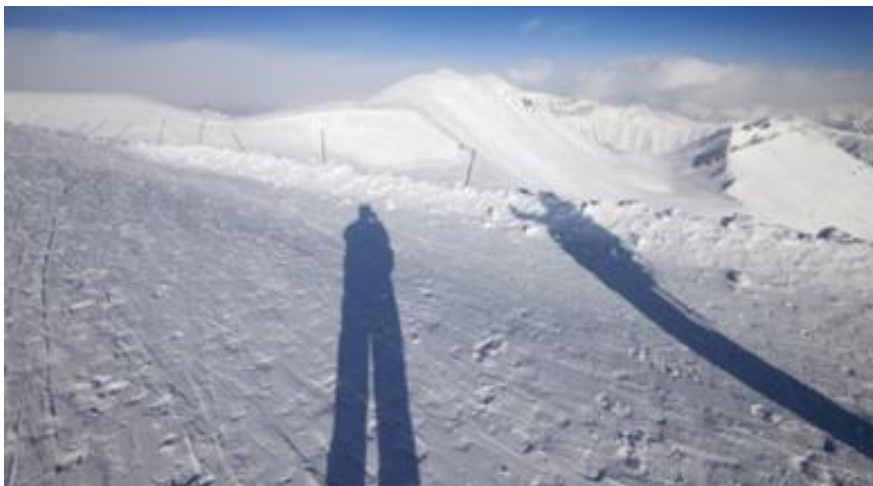
The next winter solstice will occur on Wednesday, December 21, 2022, at 4:48 PM EST. It is the astronomical moment when the sun reaches the Tropic of Capricorn.

Here in the northern hemisphere, the winter solstice is known as the shortest day of the year, or the longest night of the year, because it marks the 24-hour period with the fewest daylight hours of the year. December 21, 2022, will have only 10 hours and 1 minute of daylight! It also marks our official first day of winter.

Solstice comes from the Latin words *sol* (sun) and *sistere* (to stand still). At the moment of the winter solstice, the angle between the sun's rays and the plane of the earth's equator (the declination) appears to stand still. The sun appears at its lowest in the sky, and its noontime elevation appears to stay the same for several days before and after the winter solstice. The sun's gradual decrease in elevation in the sky reverses upon the winter solstice, and the hours of daylight become longer.

While we celebrate the winter solstice, those living in the southern hemisphere will be simultaneously marking the arrival of summer. That's because the northern half of the globe is inclined away from the sun, while the southern half is inclined toward it.

The sun's low arc across the sky in winter causes objects to cast longer shadows. If you are here in the northern hemisphere around the time of the winter solstice, check your noontime shadow: it will be your longest noontime shadow of the year!



### **Midland Section ACS Scholarship Fund Update and Encouragement to Give in 2022!**

***Gina Malczewski, Director and Scholarship Committee, Midland Section ACS***

In May of 2021, **Dr. Wendell and Marcia Dilling** (photo at right) issued a challenge relative to growing the Midland Section ACS Scholarship Fund. At that time, they committed \$18,000 of matching money to grow the fund to \$1000,000 by matching dollar for dollar all contributions made to the fund until it reached the target goal.

To date, there have been six contributions amounting to \$1,980.76, and recently Wendell and Marcia honored their matching donation commitment by submitting a check in the amount of \$2,000 to the Midland Area Community Foundation, the entity that holds and manages the Midland Section ACS Scholarship Fund.



Wendell and Marcia have recommitted to their original pledge and will continue to provide matching money until their contribution reaches \$18,000, or perhaps a little more upon future reflection. The long-rang goal remains the same, to increase the Midland Section ACS Scholarship Fund principal balance to \$100,000 to enable offering additional and perhaps larger year-by-year scholarships to well-deserving students across the greater Midland Section ACS region.

Although the current balance in the scholarship fund is a little less than where it stood when Wendell and Marcia issued their matching gift challenge (\$60,458.49 as of mid-September 2022), the investment strategies practiced by the Midland Area Community Foundation remain sound. Since May of 2021, the fund balance has decreased a mere 6.9%, pretty remarkable when considering what many of us have been seeing with the value of our own personal retirement accounts.



Continuing to invest now, when the stock market is in a bear market, means that proportionally lower cost shares of stock can be purchased now that will ultimately produce greater yields when the stock market turns around once again.

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The Midland Section ACS has been proud to offer scholarships to deserving undergraduate students majoring in a chemical science since 2002. Annually, two to four scholarships are awarded to candidates who have graduated from a high school in one of the Section's five counties (Bay, Midland, Saginaw, Isabella, and Gratiot), are studying at a Michigan university, and are ideally intending to pursue a career in some aspect of chemistry or chemical engineering. Selections are made by a committee and are based on academics, service and extracurricular contributions, and an essay on the student's sources of motivation as well as future plans. Past scholarship recipients are often highlighted in issues of the *Midland Chemist*.

Awards usually range from \$1,000-2,000, depending on the financial performance of the Midland ACS Scholarship Fund (#399) administered through the Midland Area Community Foundation. A long-standing goal of the Midland Section ACS has been to raise the base amount to \$100,000 to serve more students.

Wendell and Marcia Dilling, both chemists and long-time supporters of the Midland Section ACS, are prepared to continue to help us reach that goal by donating up to \$18,000 as part of a challenge grant to the scholarship fund. **They will match 1:1 any new contributions to the fund at the Midland Area Community Foundation over the next couple years.**

Please consider contributing to this worthwhile cause. **Your donations will help shape the future of chemistry!** If you have any questions about contributing to the Midland Section ACS Scholarship Fund, please call the Midland Area Community Foundation at 989-839-9661. Thank you.

An online donation form can be found through the following link:

[Midland Section American Chemical Society Endowed Scholarship Fund #399](#)





## ACS event for students: Day in the Life of an Industrial Scientist, January 28

*Submitted by Anne-Catherine Bedard, Dow*

The Midland ACS Diversity and Inclusion Committee and Mid-Michigan AIChE would like to invite you to attend **A Day in the Life of an Industrial Scientist**, hosted at SVSU on **Saturday, January 28, 2023**! The event is intended to illustrate what a career in R&D may look like and highlight graduate school as a potential career path after college.

Planned activities include solving a science challenge, poster session, and networking with current industrial scientists. Interested students can sign up here: [Day in the Life of an Industrial Scientist](#) by **January 5, 2023**.

If you have any questions, please email Kim Dinh at [kdinh@dow.com](mailto:kdinh@dow.com).

# Day in the Life of an Industrial Scientist

**Spend a day learning about STEM careers in industry!**  
**Activities include a problem solving challenge, poster session, and networking with current industrial scientists**

**Who:** Undergraduate students pursuing a STEM major

**When:** 9 am – 3 pm, Saturday, January 28, 2023

**Where:** Gilbertson Hall GS 202, Saginaw Valley State University, University Center, MI 48604

**Cost:** Free

Breakfast, lunch and snacks provided

Local transportation to be subsidized or provided



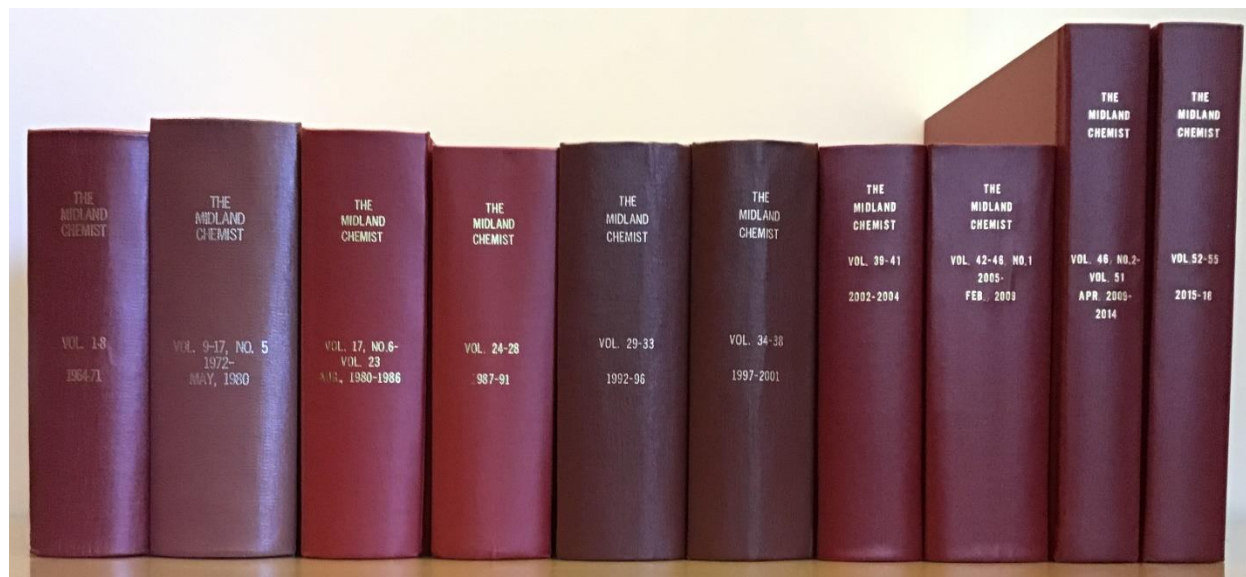
**RSVP by January 5, 2023:** <https://forms.gle/17TYtsuxgm2xJAFU7>

**Questions?** Email Kim Dinh at [kdinh@dow.com](mailto:kdinh@dow.com)



## In Past Issues of *The Midland Chemist*

Wendell L. Dilling, Director and Historian, Midland Section ACS



From these volumes . . .

**50 Years Ago**, *The Midland Chemist* **1972**, 9, No. 9, 9.

In *Midland Section's Initiative Sparks National Action*: "Early in 1971 the Midland Section's Board of Directors submitted to the National ACS Board a resolution which called for a broad study of the energy-environment problem. At their August, 1972, meeting the National Board took action as described below:

### ENERGY and the ENVIRONMENT

'For some time the Joint Board-Council Committee on Environmental Improvement, with the support of the Joint Board-Council Committee on Chemistry and Public Affairs, has been trying to initiate a study of the relative effects upon the total environment of the various means of power generation. The findings of such a study would be communicated to appropriate legislative and administrative bodies of government.

At the Board's New York meeting, the Committee on Environmental Improvement specifically requested approval of a plan to organize a meeting of committee members and representatives of the ACS Divisions of Nuclear Chemistry and Technology, Fuel Chemistry, Petroleum Chemistry, and Water, Air, and Waste Chemistry, to discuss the concept of 'Energy and the Environment' from the standpoint of chemistry.'"

**40 Years Ago**, *The Midland Chemist* **1982**, 19, No. 8, 13.

In "*Olympics of the Mind*" *Replaces Science Quiz*: "The former Science Quiz program conducted by the Midland ACS has been replaced by a very exciting, creative venture. It is an interactive venture. It is an interscholastic program known as the 'Olympics of the Mind.' The program provides creative problem solving in a competitive setting. It is currently operating in more than 1500 elementary and secondary schools throughout the country where students are challenged to 'invent' solutions to unique problems."

**30 Years Ago**, *The Midland Chemist* **1992**, 29, No. 8, 3.

In *From the Chair...* by Vicky Cobb, Chair, ACS Midland Section: “We’ve had an outstanding year, and there’s only one reason, all of you. The people participating this year were the most creative and effective that I’ve seen since I became involved in the Midland Section. I’ve been impressed all year with the dedication that everyone has shown. I’ve also been impressed and pleased with the amount of fun people had this year.”

**20 Years Ago**, *The Midland Chemist* **2002**, 39, No. 8, 13.

In *Section Initiates Scholarship Fund Drive* by Lin Dorman: “In keeping with the mission of the American Chemical Society ‘to encourage in the broadest and most liberal manner the advancement of the chemical enterprise and its practitioners,’ the Midland Section has endowed a scholarship fund to provide financial support to college students seeking academic degrees in the chemical sciences at colleges and universities in the Section’s area. The endowment was initiated by the Section with The Midland Area Community Foundation at the threshold level of \$5,000. The ultimate endowment goal is \$100,000, which would enable the funding of five annual scholarships for the collegiate institutions in the Midland Section area.”

**10 Years Ago**, *The Midland Chemist* **2012**, 49, No. 7, 4.

In *2012 Directors-at-Large Election - Different Candidates, Different Numbers, Same Result* by Wendell L. Dilling, Director and Historian: “In the 2012 ACS election for Directors-at-Large four candidates ran for two positions (*Chem. Eng. News*, Nov. 26, 2012, p 7). Directors-at-Large are selected by Councilors with each Councilor having two votes. The vote tallies were as follows:

Ingrid Montes	225	58.7%
Valerie J. Kuck	183	47.8%
Helen (Bonnie) A. Lawlor	150	39.2%
Carol A. Duane	143	37.3%

The number of Councilors voting was 383. Some (65) voters obviously voted for only one candidate. The numbers shown following the vote tallies are the percentages of voters who voted for that candidate. According to the current bylaw the two candidates (Montes and Kuck) who received the most votes were elected (plurality). Only Montes was elected by a majority (>50%) of the voters. Kuck was not favored by a majority of the voters.”

## Upcoming Dates, Events, and Other Updates

- December 7 (7:00 PM) – MSU St. Andrews Family Astronomy Night, free virtual event. Presentation topic: *Mars: The Most Controversial Planet*. See article in this newsletter for details. Please see <https://standrews.msu.edu/family-astronomy-night/> for more information.
- December 12 (7:00 – 8:00 PM) – **NEW DATE**. Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - December 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771. **Please note: This Board meeting has been rescheduled to the second Monday of December, not the usual first Monday.**

- December 19 (4:00 – 6:30 PM) – 2022 Midland Section ACS Volunteer Appreciation event, at Creative 360, 1517 Bayliss Street, in Midland. Save the date; more details to follow. For more information, please contact Robbyn Prange at [RPrange@dow.com](mailto:RPrange@dow.com), or Gina Malczewski at [reginamalczewski@gmail.com](mailto:reginamalczewski@gmail.com).
- January 9 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - January 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771. **Please note: This Board meeting is being held on the second Monday of January, not the usual first Monday of most months due to the New Year's Day holiday.**
- January 28 (9:00 AM – 3:00 PM) – The Midland ACS Diversity and Inclusion Committee and Mid-Michigan AIChE present *A Day in the Life of an Industrial Scientist*, for undergraduates pursuing a STEM major. Gilbertson Hall GS 202, Saginaw Valley State University. Event is FREE. **Registration deadline is January 5, 2023.** Register at [Day in the Life of an Industrial Scientist](#). See flyer in this newsletter for details. Email Kim Dinh with questions at [kdinh@dow.com](mailto:kdinh@dow.com).
- February 6 (Tentative Date) (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - February 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
- March 6 (Tentative Date) (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - March 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
- March 26-30, 2023 (Save the Date) – ACS Spring 2023 National Meeting & Exposition, Indianapolis. In-person and virtual hybrid meeting format. Meeting theme: *Crossroads of Chemistry*. For more information about the ACS Spring 2023 meeting, please see [ACS Spring 2023](#).
- April 3 (Tentative Date) (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - April 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
- May 1 (Tentative Date) (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - May 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
- June 5 (Tentative Date) (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - June 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.



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