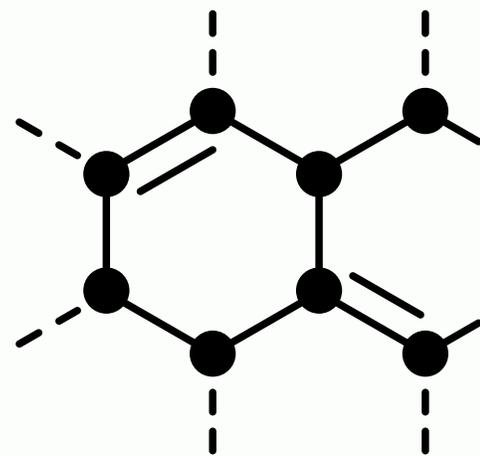


BLOCK 5 CHEMISTRY NEWSLETTER



"One of our favorite things is when students feel comfortable enough to engage us in conversation in lab, leading to iconic quotes such as 'Nobody cares about your stupid humans, Gerald.'"

-Paraprofessionals
Will Abbey and Jennifer Begay



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*Welcome to the
Chemistry Newsletter!*

Pg.2

*Class feature and
upcoming events*

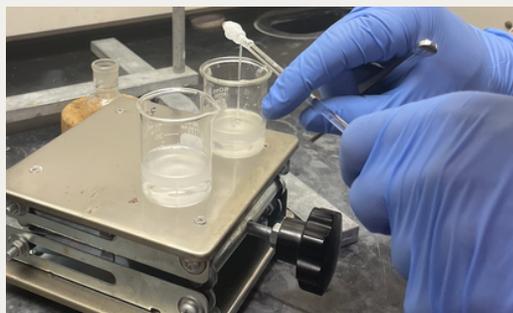
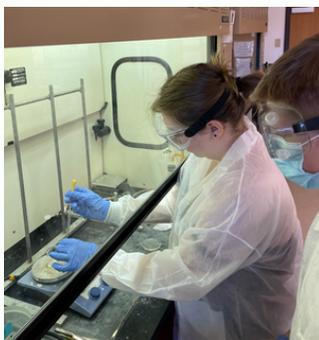
Pg.3

*Senior Thesis
Projects*



Welcome to the Block 5 Chemistry Newsletter! This newsletter is a documentation of all the amazing things that have happened within the chemistry department during Block 5!

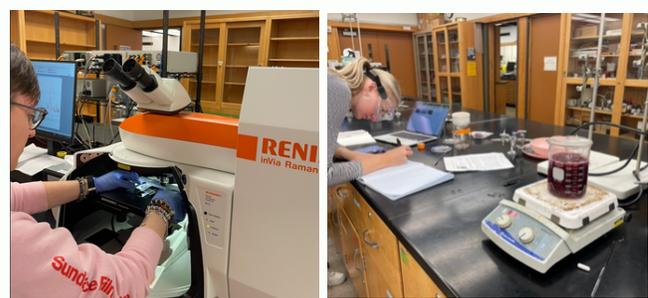
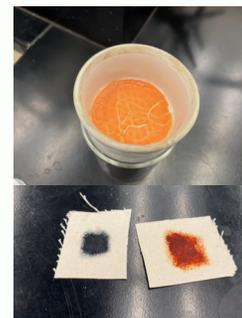
This newsletter will be available every block, with updates about new classes, current research, and exciting opportunities within the chemistry department. Thanks for tuning in!



Dr. Habiba Vaghoo and Dr. Jessica Kisunzu's CH251 class making Nylon!

Featuring CH113: Chemistry of Art and Art Conservation

This block, a new class developed by Dr. Amanda Bowman looked at art conservation through a new lens. Here, students explored the chemical principles underlying the physical properties of art, as well as the application of chemistry to the technical examination and authentication of art/cultural objects.



In lab, students had the opportunity to prepare their own lake pigments, which are made from dye molecules, or organic compounds. Students first prepared a standard lake pigment called Alizarin lake, to familiarize themselves with the synthetic process. Alizarin is found in the roots of the madder plant that has been used as a red dye throughout history. In groups, students then developed a synthesis for a novel lake pigment based on natural dye materials such as flowers and leaves.

"For my sabbatical work, I worked in a conservation science lab in an art museum, and really enjoyed it! I've been interested in developing a more regular, 100 level chemistry course for students who may not necessarily be STEM majors in collaboration with the museum studies minor to be an elective for that department. I hope that this can be a class that makes STEM feel accessible for students who may not have explored this field. This block, we have been focusing on analyzing painted art and the chemical structures, compositions and properties of pigments used in art. We also used instrumental analysis such as infrared, RAMAN, reflectance, and x-ray fluorescence spectroscopy to analyze painted art for conservation or restoration." -**Professor Amanda Bowman**

Block 5 Events

CC arts and crafts helped us host a DIY photo frame activity this block! Students got to design a unique photo frame for their major wall photo.

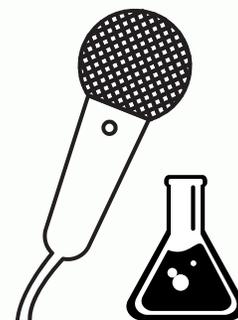


Upcoming Events in Block 6

We have so much incredible talent within our department, so why not showcase it? The chemistry department will be hosting an open mic in Sacred Grounds on March 9th from 7-8pm! Scan the QR code below if you are interested in attending and/or performing.



Scan to RSVP!



Senior Thesis Projects



Anusha Vajrala

This past summer, I conducted research in the NSF-REU program at Montana State University in a bioinorganic chemistry lab where I studied the radical SAM enzyme, pyruvate-formate lyase activating enzyme (PFL-AE). Radical SAM enzymes exist in all forms of life, and there is still very much that is unknown about this superfamily that can heavily benefit medical and pharmaceutical industries. My research focused on bioengineering PFL-AE to change its natural reactivity to that of an epimerase through site directed mutagenesis of the protein. We were able to successfully insert a D16C mutation in our protein, but more work is still needed to determine if the point mutation resulted in epimerase activity. Conducting this research gave me the opportunity to learn and use a variety of new chemical instruments such as the FPLC and EPR spectrometer, and helped me further understand the interdisciplinarity of chemistry. I will be attending graduate school in the fall to pursue my PhD in chemistry, and I am excited to continue to answer unique chemical questions to foster mine and others curiosity.



Adrian Larkspur

Organic sunscreen molecules, such as oxybenzone and avobenzone, have been shown to dramatically harm coral and contribute to widespread coral death. My seminar project was the quantification of sunscreen pollution at various beaches in order to analyze the effectiveness of Act 104 (a recent law banning sale of oxybenzone in Hawai'i). I received a Venture Grant to sample ocean water around Hawai'i and then worked with Dr. Brasuel and other Chemistry personnel to analyze the water samples. We were able to show for the first time since Act 104 that oxybenzone is still present at levels dangerous to coral and other vital organisms. I enjoyed this project because it allowed to me to use chemistry knowledge to try to help my home, a place I feel immense gratitude and love for. Corals are an essential and sacred part of Hawai'i, and we must do all we can to stop preventable pollutants contributing to their deaths. After graduation I hope to take a gap year and then attend a graduate school focusing on the environment, health, and/or the intersections between them.