

# BIOCORE

UNIVERSITY OF WISCONSIN-MADISON



## BIOCORE IN THE PRAIRIE

## BIOCORE AT A DISTANCE

Adapting Biocore to the COVID era



Starting the 2020-2021 Academic Year, Biocore was faced with the question "how to adapt Biocore to an online environment without losing key components and our hallmark learning community?" Through careful communication, collaboration, and planning, Biocore has adapted to teach students to ask and explore "how do we know what we know?" in a remote environment.

When transitioning to remote learning, the Biocore teaching team were careful to adapt curriculum to preserve core tenets of the program. Specifically we asked students to:

- **MAKE OBSERVATIONS** based on materials and environments that were accessible to them. This meant creating opportunities in the Biocore Prairie and ensuring students could interact with one another within their own living spaces.
- **GENERATE QUESTIONS** and develop their own novel experiments using at-home laboratory set ups as the basis for their research
- **FORM COMMUNITY** through synchronous class meetings and by interacting with instructors and peers through small group problem solving, in-person labs at the Biocore Prairie, and online co-curricular activities.



# ALUMNI SPOTLIGHT

## BAILA KHAN



We are excited to welcome Baila Khan back into Biocore as a Teaching Assistant in Biocore 382 and 384! Baila has been involved in Biocore in many roles - a student, BOA co-chair, undergraduate TA, and staff member as High Impact Practice Facilitator for 2019-2020. Currently, Baila is pursuing her Master's in Public Health at UW, researching women's health equity focusing on black maternal and child health. In addition, Baila was most recently featured in UW's Diversity Forum "HERSTORY: Voices from Women Students of Color Pursuing Careers in STEM Fields"

## DR. ANNA KOWALKOWSKI

We welcome Dr. Anna Kowalkowski back to Biocore for 2020-21, this time as a teaching postdoc! Dr. Kowalkowski completed Biocore in 2001 with an undergraduate major in Zoology. While pursuing her PhD at UW in Physiology, focusing on intestinal development, Anna worked as a teaching assistant where her interest in education grew. In addition to teaching, Dr. Kowalkowski was a volunteer mentor for Our Wisconsin, where she facilitated conversations between first year students on diversity, equity, and inclusion (DEI). Dr. Kowalkowski's work in Biocore includes DEI initiatives and co-developing Covid-themed cell biology curriculum in 2021.



## REMEMBERING

## PROF KELLY CLIFTON

We are sad to report the passing of Professor Kelly Clifton. Professor Clifton was one of the founders of Biocore and also served as the program's first director, shaping the program as it exists today. Kelly Clifton will be remembered both for his outstanding legacy of research and the encouragement and support he provided his students.



## PROF DONATA OERTEL

Professor Donata Oertel passed away on April 22nd, 2020. Donata Oertel was the founding chair of the Department of Neuroscience, and taught in the Biocore program from 1981 to 2007. She was a wonderful colleague, highly respected leader and researcher, innovative educator, caring teacher, and dear friend.

## FROM THE DIRECTOR

### Greetings from Biocore!

From the very start of 2020, we knew it would be an unusual year.

On March 1, 2020 we submitted Biocore's self-study in preparation for the first program review in 19 years. On March 10, we briefed all students, faculty, TAs, and our core team before moving all operations online. What we thought would be a brief 6-week hiatus, turned into the "unprecedented times" of Covid-19.

With so many unknowns, Biocore masked up, learned online conferencing tools, debated the merits and equity of synchronous v. asynchronous learning, cameras on v. off, and tried to hold steady as the higher ed world seemed to be unraveling.

When all activities were closing down, Covid-19 restrictions forced us to think outside of our already open box. By July 20, the Chancellor announced we'd be online in fall and that, under strict protocol, we could hold in-person class meetings -- our classroom, of course, would be the Biocore Prairie. Fall faculty did a heroic job translating curriculum, activities, and assessments; training themselves and supporting each other in a new way to teach and engage with students.

Once fall arrived, we discovered that we could do Biocore online! Through fall, we updated, revised, created, and developed new ways to connect in community from courses, to outreach, peer mentoring, and alumni networking. Yet in all this newness, the values and philosophy that define Biocore remain. I could not be more grateful and proud of what we accomplished as a learning community.

Biocore's vision and mission of excellence in undergraduate biology education depends on our committed UW Madison community, and your friendship and generosity. We appreciate your help and support!

**Janet Batzli, Biocore Director**  
and the entire Biocore Team



Contact us to connect with students through **Alumni networking** or **Give to Biocore** @ [biocore.wisc.edu](https://biocore.wisc.edu)

# RESEARCH

A large part of the Biocore experience is the ability for students to conduct their own independent research projects throughout the semester.

Students enrolled in Biocore 181, 382 and 486 were given research kits, created and assembled by Seth, or loaned equipment to help students conduct their own investigations in groups - but at home.

With research kits situated in bedrooms, kitchens, and closets, students were able to make observations and ask questions about Wisconsin Fast Plant genetics, ecology of aquatic water fleas (*Daphnia Magna*), physiology of blackworms, and used themselves and their roommates as research subjects! Link to see students [at-home projects](#) and in action at the [Biocore Prairie!](#)



"Although our whole experimental tray of plants died to the vinegar, we managed to still obtain data."  
Vy Luong, Biocore 382 student



"My roommates and I enjoyed watching these little plants grow every day! So glad that they are thriving!"  
Brad Li, Biocore 382 student

## CURRICULAR INNOVATIONS

## DISCOVERY MINDSET

The Biocore experience was extended to first year students through a *new* two credit Honors course - Biocore 181: Becoming a Scientist: Doing Biology Research led by Dr. Michelle Harris. This fall ten students explored research at UW Madison using 'how we know what we know' to conduct their own authentic biology research throughout the semester.

Students were introduced to research by connecting with current Biocore students and research labs on campus. Mentored by three senior undergraduate TAs, students worked in teams of 3-4 to ask novel questions and develop a biology research project of their own choice. At the end of the semester, students presented their final projects on topics ranging from human physiology, incidence of asthma using public health databases, temperature sensitivity of blackworms, and plant microbe interactions.



First-year students present their research to classmates and instructors through Zoom

## INTEGRATION

One challenge Biocore has faced has been transitioning cell & molecular biology to an online format in a way that allows students to develop inquiry-based group learning experiences.

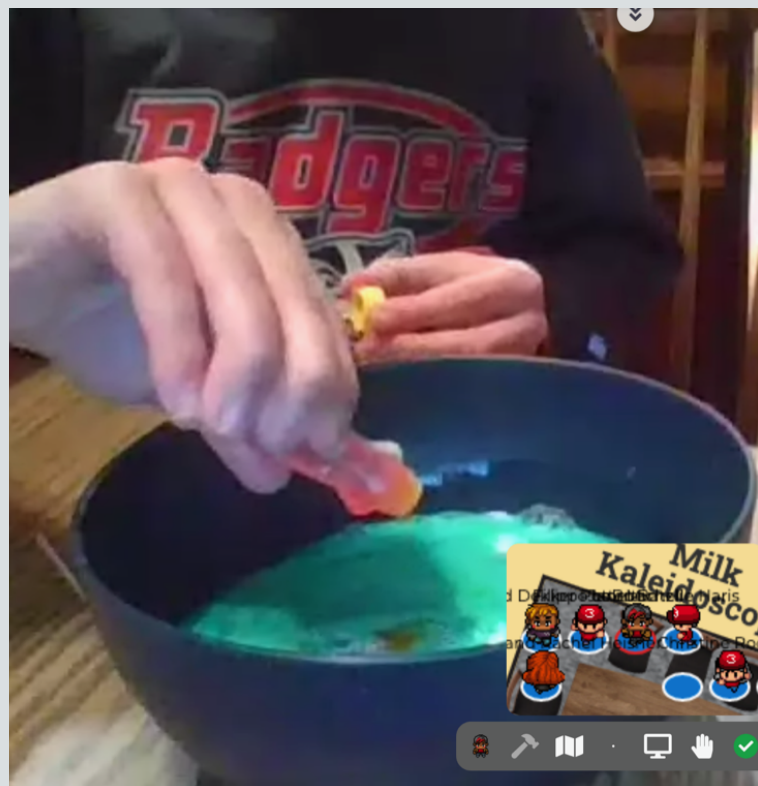
Stemming from presentations by Dr. Shelby O'Connor, (Assoc Prof, Pathology and course chair Biocore 383) Biocore 383 and 384 will introduce a COVID-19 themed curriculum in spring 2021.

We are excited to incorporate saliva biochemistry, Covid-19 genetics and signal transduction into Biocore 383 lecture course. As campus ramps up Covid-19 testing for the student body, Biocore 384 lab students will be doing a COVID-19 testing research project in coordination with the O'Connor lab, to apply the skills they learn in Biocore to real life.



Wearing Biocore colors, Shelby O'Connor takes part in vaccine trial- summer 2020.





## BOA

The Biocore Outreach Ambassadors (BOA) continue to work towards enhancing science education for a k-12 audience. This year, the Ambassadors are bringing their inquiry-based learning approach to a new environment - online!

On November 13th, the Ambassadors participated in their first virtual Science Night hosted by the Mineral Point School District.

The Ambassadors coordinated with the School District to create a list of materials students and parents would need to perform experiments at home. Favorite experiments including Milk Kaleidoscope, Yeast Explosion, biophysics of a Badger Jump Around, topped of by Coke Fountain height predictions were all led by the Ambassadors. Small groups of kids and parents walked as avatars around a virtual gymnasium floor visiting stations, and exploring science from their kitchen table.

BOA have planned events at the Wisconsin Institutes for Discovery, bimonthly After School Science Club, and more virtual Science Nights through the 2020-2021 school year.

## PEER ADVISORS

The Biocore Peer Advisors started in 2017, to serve as a bridge for prospective students to Biocore. Trained peer advisors are current juniors and seniors, who connect with interested first year students. This year, when Covid served to distance, the Peer Advisors developed 'Biocore Buddies' to foster community among newly admitted students online during the summer prior to the start of classes.

Small groups of 5-6 Biocore Buddies met virtually once per month from May to August 2020, connecting new students in small groups to discuss various aspects of Biocore, talk about current issues including Covid-19 and social justice, and to get to know each other. Students who participated said that Biocore Buddies helped them "feel more accepted in the new community they are joining."

The Peer Advisors are expanding their reach in a collaboration with BOA. In fall 2020, Peer Advisors and BOA wrote a proposal for Kemper Knapp Grant funding to connect their work with Madison area middle and high school students interested in science from under served communities.

## OTHER NEWS

Thank you to Biocore graduates Olive Aviles, Katie Plachta, and Macy Peterson who proposed a new Biocore Honors graduation stole. Though still a work in progress, we are excited to unveil our Biocore Honors pin (depicted below) distributed to UW 2020 graduates along with recognition on the UW Provost's [Wisconsin Honors website](#). Congratulations!

Amanda Popp ('20 MS Educational Leadership and Policy Analysis) joins Biocore staff as *High Impact Practice Facilitator* to expand peer advising, outreach, communication, and course support. Welcome to the Biocore team!

Biocore Peer Advisors hosted three very successful alumni networking and career panels this fall focused on careers in research, medicine, business, education, conservation, and science writing. Thank you for sharing your experience and connection!

Patrick Brady, Sara Grange, Craig Kohn, Julia Loosen, Colleen Miller, McKensy Miller, Ian Norman, Becky Reese, Rhyomi Sellnow, and Natalie Tupper!

