

# GEMS NUGGETS

ISSUE 01

FALL 2023

## INSIDE THIS ISSUE

- Thesis Defenses
- Education Updates
- GEMS Travel
- 3rd Annual Retreat



## NOTE FROM THE EDITOR: WELCOME!

Welcome to the inaugural edition of *GEMS Nuggets*, the GEMS newsletter! One of the largest pieces of feedback the GEMS EC gets from our retreats each year is the opportunity for more connection. While we can only see each other in person every so-often, we can at least stay up-to-date with our collaborators and co-workers in the months we're not all in a room together!

We will release three editions of this newsletter per year, kicking off fall winter, and summer. But to do so, we need your news! We welcome all submissions—from both PIs and from trainees at all levels. If you're not sure whether your submission is newsworthy, submit it anyway! Conference abstracts, pre-prints, and upcoming workshops are just as worthy of celebration as thesis defenses and publications. On the last page of the newsletter, you will find a QR code which you can scan to submit your news. Highlight your students! Highlight your GEMS colleagues! Highlight yourself! (Yours truly is the only one who will read them, so I am giving you full permission for self-promotion!) And for those of you who already submitted to this edition, thank you!

But for now, read on! Lots of exciting updates await, including multiple thesis defenses, new paper submissions, and conference attendances. And start preparing your travel plans for our third annual retreat in just a few weeks! We can't wait to see you all soon at Allerton!



## UPCOMING EVENTS

### BIWEEKLY FRIDAYS 9AM

Writing Group  
Graduate Hotel  
Bloomington, Indiana

### BIWEEKLY MONDAYS 1/2PM

GEMS Seminars  
Zoom  
Link in emails from Susan!

### MONDAYS 9:30/10:30

MGEs Reading Group  
Zoom  
Link coming soon!

### SEPTEMBER 18-19

3rd Annual GEMS Retreat  
Allerton Park  
Monticello, Illinois

## NEW GRADUATES

Four GEMS trainees, the first of many, successfully defended their doctoral theses this summer! First up in May, Lana Bolin in the Lau Lab at IU defended her thesis, entitled *The cryptic role of microbes in plant ecology and evolution*. She celebrated with a great cake from her co-workers. Currently she is working as an NSF Postdoctoral Fellow at the University of New Mexico with Jennifer Rudgers.

In Tony Yannarell's lab at the University of Illinois, Kevin Ricks successfully defended his dissertation, entitled *Rooting Microbes in Plant Adaptation: The evolution of locally adaptive plant-microbe interactions* on June 13th. Kevin plans to do a post-doc with Meghan Frederickson at the University of Toronto starting this fall.

It has also been an exciting summer in the Newton Lab at the University of Indiana, with two students, Delaney Miller and Audrey Parish, both defending their dissertations. Delaney defended on June 26th, and plans to do a post-doc at the University of Wisconsin, Madison, with Mark Mandel. Audrey defended her dissertation, entitled *Mechanisms of provisioning to pathogenesis in a honey bee larval symbiont* on July 14th and plans to do her post-doc with Buck Samuel at Baylor University in Houston this fall.

## CONGRATULATIONS AND BEST WISHES!



# EDUCATION & OUTREACH

## TEACHER WORKSHOP

Multiple GEMS science graduate students, including Izzy Lakis, Jeanette Cullum, and Patrick Wilson, joined GEMS education graduate students Nick Leonardi, Pooja Roy, and Alex Murarus, to continue developing curriculum units for K-12 classrooms, including units on soil microbiology using Winogradsky columns, and ecosystem health with *Daphnia*. These graduate students and new GEMS student Thomas Zambiasi, as well as Emily Terrill, a PEEC graduate student, came together to participate in a three-day teacher workshop, attended by 13 teachers from Illinois and Indiana. Teachers and trainees worked together to establish new units. Additionally, GEMS faculty members Carla Cáceres, Katy Heath, and Tony Yannarell, visited to give informal talks.

Barbara Hug, GEMS education team leader, thought that the workshop was a huge success, leading to new collaborations across laboratories and K-12 classrooms. She and the GEMS education graduate students are looking forward to continuing to work with science graduate students and teachers into the fall. Classroom visits are being planned in order to support the enactment of new modules and continue strengthening partnerships.

Images: Top: Graduate students Patrick Wilson and Jeanette Cullum brainstorm with teachers. Bottom: Participants from the teacher workshop in front of the Natural History Building at UIUC.



## SUMMER CAMPS

Throughout the summer, GEMS Education has also continued its collaboration with both Full STEAM Ahead and the X-Time Summer Camp. Full STEAM Ahead happens the first Thursday of each month in partnership with the Champaign Park District, while the X-Time Summer Camp sessions happened for a week each during June and August. An additional UIUC-Champaign Park District co-sponsored summer camp took place in July, led by Carla and Katy. During these camps, students learned about a broad range of topics, including microbial diversity, soil health, and plant-microbe symbioses.

Left: students explore microscopy under the watchful eye of graduate students. Right: kids look for plants outside!



## SCIENCE CORPS AND REU PROGRAM

GEMS has continued its involvement this summer in both the Science CORPS program as well as the REU program. Science CORPS is a fully remote, part-time research experience in biology for community college students. This year, 16 people participated (8 from UIUC and 8 from IU), led by Lana Bolin, Emma Boehm, and Alex Riley. Additionally, GEMS had 2 REU participants this summer working in the Dolezal and Vanderpool Labs at UIUC under the direction of Ed Hsieh and Hunter Cobbley.



**Scan the code on the right to get involved in all outreach!**

## TRAINEES ON THE ROAD

This summer, trainees traveled all around the country to present original GEMS research at national meetings like Evolution, ESA, and multiple Gordon Research Conferences, as well as participating in courses such as the Microbial Diversity Course.

Left: Ivan Sosa-Marquez at Evolution. Right: John McMullen at ESA.



Additionally, students participated in field work this summer. Chris Robinson from IU collected bee larvae at Indiana University, working with both undergraduates and high school students.

Left: Chris in his bee suit. Right: High schoolers collecting bees!





# IN PRESS



GEMS graduate Kevin Ricks has recently published a new paper in *Proceedings of the Royal Society B*, entitled *Soil moisture incidentally selects for microbes that facilitate locally adaptive plant response* (left).

Kevin and mentor Tony Yannarell also did an interview with the ACES News team (right). Check out both at the QR codes below!



Jay Lennon's group has recently published three papers which may be of interest to the GEMS community: an article in *Nature* entitled *Evolution of a minimal cell* (left), an article in *mBio* entitled *Human-Gut Phages Harbor Sporulation Genes* (middle), and an article in the *ISME Journal* entitled *Bacteria-phage coevolution with a seed bank* (right). All three articles are linked below!



**If you have recently submitted a pre-print or published and your work is not listed here, scan the QR code on the last page so you can be highlighted in the next edition!**

# GEMS RETREAT



Dust off your presentation skills (and, new this year, your Jeopardy skills!), it's GEMS Retreat time once again! Returning GEMS members, we are so excited to see you again. New GEMS members and GEMS collaborators (this includes you, undergraduates!), we sincerely hope you will attend! These retreats are meant to be a low-stress way to network and meet scientists from our member universities. If you've ever wanted an opportunity to chat about science around a campfire, here's your chance!



This year's retreat will be held once again at Allerton Park, only 20 minutes from UIUC, on September 18th and 19th. If you can, we encourage you to carpool! (Remember that GEMS Slack we almost never use? I bet it would be a great way to find a ride...)

This year the retreat will feature two types of talks: a 5-minute lightning talk section specifically to highlight new projects, as well as multiple sections of 12-minute talks, divided roughly into categories. There will also be a poster session, as well as plenty of time to catch up with our colleagues from other universities. The draft schedule is attached on Page 4, please give it a read! And we'll see you soon in Allerton!

**Previous GEMS Retreats!**

# DRAFT GEMS RETREAT SCHEDULE



**GEMS Annual Retreat 2023**

*Allerton, IL*

Sept 18th and 19th

## **Monday, September 18th**

3:00-4:00 pm	Hotel Check-In
4:00-4:30 pm	GEMS Welcome
4:30-5:15 pm	5 Minute New Project Flash Talks
5:15-6:00 pm	Poster Session 1
6:00-8:00 pm	Dinner and Meet & Greet
8:00-8:30 pm	Science improv/ GEMS Jeopardy
8:30 pm	Social time

*Note: For overnight guests, check in is at 3pm on the 18th and check out is 11am on the 19th.*

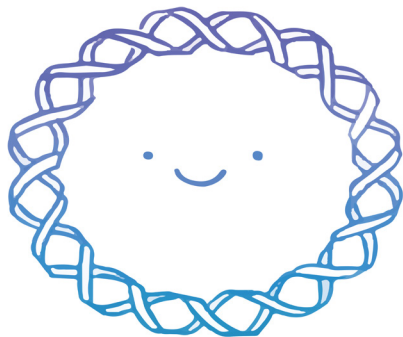
## **Tuesday, September 19th**

8:00 am	Breakfast
9:00 am	Welcome remarks and GEMS update
9:15-10:30 am	Talks Session 1
10:30-10:45 am	Coffee break
10:45 - 12:00 pm	Talks Session 2
12:00 pm	Group photo
12:10 pm	Working Lunch
2:00- 2:45 pm	GEMS Interactome Survey
2:45- 3:15 pm	Coffee break/GEMS Jeopardy
2:45-4:00pm	Report out from lunch and afternoon activities

*Coffee/tea will be available throughout the day.*

**This schedule is still in progress and is subject to minor change.  
We are looking forward to seeing everyone soon!**

## READING GROUP



Students at the University of Illinois have recently decided to start an informal Mobile Genetic Elements journal club, similar to the MGEs journal club run in the spring of 2022, and everyone is invited! The tentative times for meetings are 9:30CST/10:30EST on Mondays (to get us all motivated to come to work on those tough Mondays), meeting bi-weekly. All meetings will be held over Zoom, in order so that anyone interested in GEMS can come. This is meant to be an informal and stress-free reading group, so there is no need to attend every week.

If you would like to suggest a paper, or find out more information about the journal club, there is a Slack channel in the GEMS Slack entitled "Reading Group". Additionally, a QR code to submit papers you'd like to read is located left. Any MGE-adjacent submissions are encouraged—whether you are excited about phages, plasmids, transposons, or any of the other strange mobile genetic elements we love so much. The Reading Group coordinators hope to see you soon! NOTE: This journal club is separate from regular GEMS seminars/readings.

## NEWSLETTER SUBMISSIONS

If you have any exciting news to share, including papers, pre-prints, conferences, events, or more, please submit at the link below! As a note, this newsletter will only be released 3 times per year, so if it is an event which will occur before December, please email Susan instead so she can tell the GEMS list-serv! This form is set to be open to multiple submissions, so please fill it out as many times as you like. We are so excited to hear from you!

Additionally, if you would like to be on the *GEMS Nuggets* team, please contact [sierrab4@illinois.edu](mailto:sierrab4@illinois.edu) or send me a Slack. Currently this newsletter is a one-woman job, (and a labor of love), so if you have any great ideas or are passionate about digital media and want to get involved, please get in touch! I would love to work with you!

Until next time, everyone! Keep being the GEMS you are. Hah! I'll see myself out.

-Sierra Bedwell, Editor-In-Chief

