

# BIO SIGMAA Spring 2020 Newsletter

## *Activities at Mathfest 2020*

As of now, Mathfest planning continues to move forward as scheduled, yet the MAA is closely monitoring the Covid-19 situation. Any updates or changes will be posted on the Mathfest website at <https://www.maa.org/meetings/mathfest>.

The BIO SIGMAA is sponsoring the Themed Contributed Paper Session, *Mathematics for the Life Sciences: Initiatives, Programs, and Curricula*, slated to take place on, Saturday, August 1, 2020. The session is organized by Tim Comar (Benedictine University), Carrie Diaz Eaton (Bates College), and Raina Robeva (Randolph-Macon College). The 2015 CUPM Curriculum Guide to Majors in the Mathematical Sciences identified the life sciences as a key path through the mathematics major to graduate programs and the workforce. Topics included scholarly contributions addressing initiatives, programs, curricula, and course materials at the interface of mathematics and the life sciences that have been implemented and tested at institutions of higher education.

Abstract submission has been extended to May 15, 2020. The link for abstract submission is:

<https://www.maa.org/mathfest/abstracts>

As this session is the primary presence of BIO SIGMAA at Mathfest, we strongly encourage you to submit to this session. We hope to have at least twelve talks this summer.

## *BIOSIGMAA Welcomes New Chair-Elect*

Alex Capaldi of Valparaiso University was elected Chair-Elect in Fall 2019. He will serve one year as Chair-Elect, two years as Chair, and one year as Past Chair.

Alex received his B.S./B.A. in mathematics and chemistry from Ferris State University and his Master of Operations Research and Ph.D in Applied Mathematics from North Carolina State University. He is dedicated to undergraduate research in mathematical biology; he runs the Valparaiso Experience in Research by Undergraduate Mathematicians (VERUM) program, co-edited the book *An Introduction to Undergraduate Research in Computational and Mathematical Biology*, and serves as an associate editor of *Spora, A Journal of Biomathematics*. His research interests focus on theoretical ecology and evolution, particularly dealing with conservation, extinction, and historical biology.

## ***Activities at the 2020 Joint Mathematics Meetings***

The BIO SIGMAA **Business Meeting, Reception, and Guest Speaker** took place on Thursday, January 16, 2020, at the Colorado Convention Center. Our speaker was **Dr. Karin Leiderman**, Associate Professor and Director of Graduate Studies in the Department of Applied Math & Statistics at the Colorado School of Mines. Her talk title was, *Recent challenges and successes in mathematical modeling of blood clotting*.

The BIO SIGMAA-sponsored **MAA Invited Paper Session on Trends in Mathematical and Computational Biology** took place on Thursday, January 16, 2020 at the Colorado Convention Center. Speakers included Laura Miller (University of North Carolina), Forest Mannan (Colorado School of Mines), Erika Camacho (Arizona State University), Brittany Stephenson (Lewis University), and Sebastian Schreiber (University of California, Davis).

## ***2019 Andersen Prize Winners***

The 2019 winners of the Anderson Prize for the MAA are **Ciara Andersen** and **Issa Susa** of Smith College for their presentation “Modeling Population Distributions and Spatial-Temporal Patterns of Animal Groups with Producer-Scrounger Behavior.” The winner of the for PME award is **Eric Leu** of Hope College for his presentation “Remote Identification of Cloud Forest Landslides: A Machine Learning Approach”.

**Issa Susa**, who grew up in Dallas, Texas, is a sophomore at Smith College. She began college with plans to become an engineering major; however, after her summer REU, her plans changed and she declared a math major. Her supervisor for her Summer Undergraduate Research Fellowship (SURF) experience in 2019 was Nesity Tania and her project consisted of modeling Producer-Scrounger behavior with ordinary differential equations. After she graduates from Smith, she plans to attend graduate school to pursue a degree in applied mathematics. She is an Achieving Excellence in Mathematics, Engineering and Sciences (AEMES) Scholar and is currently working on a research project centered around the Latinx community and their health.





**Caira Anderson**, born in Brooklyn, New York, and raised in Conyers, Georgia, is a senior at Smith College. She began her undergraduate career focusing on the humanities, but declared a Math major and Spanish minor in her sophomore year. She worked with her partner, Issa Susa, and their supervisor, Nesy Tania, in a Summer Undergraduate Research Fellowship (SURF) experience in 2019 on a project modeling Producer-Scrounger behavior using ordinary differential equations. She has plans to gain a PhD in Applied Mathematics and become a professor. Caira has been a Math Teaching Assistant and currently is a force for the promotion of equity and inclusion on Smith College campus while on the Science Center Committee for Diversity (SCCD).

Eric Leu, born in Fremont, California, had spent the majority of his education overseas before returning to the states for an undergraduate degree. His strong passion for the sciences drew him to pursue undergraduate research with his mentor, Dr. Brian Yurk. Together, they explored the use of mathematics with machine learning to produce ecological modeling systems for satellite imagery. Currently a sophomore at Hope College, Eric is majoring in both mathematics and computer science, and often spends time working away in the study of artificial intelligence. Following his graduation, Eric plans to develop his skills in graduate school for his dream of contributing to modern technological advancement in service to our world.



### ***Coming Soon: MAA Connect***

**MAA Connect** is a new member engagement and communication platform offered as a part of your MAA membership. MAA members and math enthusiasts can use it to discuss engaging topics that are important and relevant to the math community. Members are automatically enrolled in the Section and SIGMAA(s) groups tied to their membership on MAA Connect. The link to MAA Connect is: <https://connect.maa.org/>.

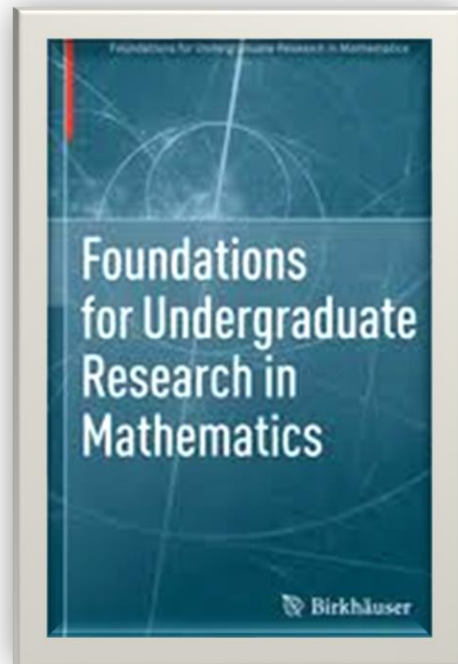
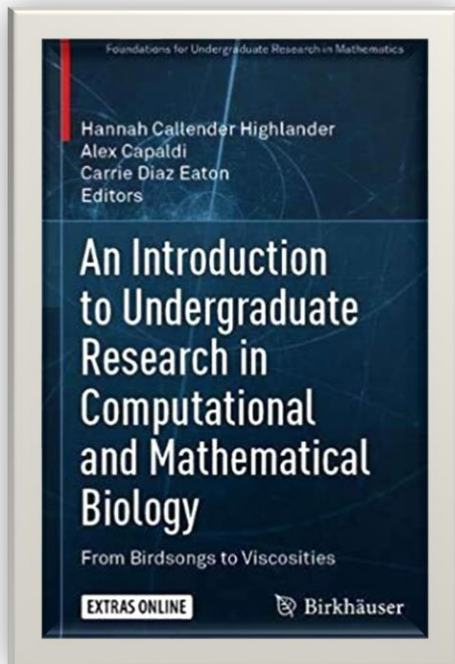
## Other News

A special issue devoted to education of the *Bulletin of Mathematical Biology* is in the works (Editors Lou Gross, John Jungck, and Raina Robeva). The issue is planned to appear in the second half of 2020.

A special issue of PRIMUS titled “Mathematics and the Life Sciences: Initiatives, Programs, Curricula” is also in the works (Editors: Raina Robeva, Tim Comar, Carrie Eaton).

Stayed tuned for both of these issues...

The series *Foundations for Undergraduate Research in Mathematics* (FURM) provides examples of and ideas for undergraduate graduate research in mathematics, including mathematical and computational biology.



## News from Partner Organizations



*QUBES has been busy responding to the needs of our community and working with our partners to develop solutions that meet instructors where they are.*

### How is QUBES Supporting You During the COVID-19 Crisis?

#### Communication

- We've added a COVID-19 weekly mini-newsletter for community news. Our latest newsletter is [here](#).
- Social media is directed specifically towards community support. Follow us on Facebook and Twitter!
- A webinar from Partner BLUE, iDigBio and AIBS which also directed folks to the Open Education Community (below)

#### Newly Launched Resources

(1) A new Open Education Community (OEC), [Teaching Quantitative Biology Online](#), to consolidate and promote OER's created (or easily adapted) for online teaching.

(2) A form to identify community members who need support, such as moving a conference or workshop online. The QUBES team is individually consulting with these projects to guide them as they re-imagine their events, honing down to necessary outcomes and finding pathways to achieve those. QUBES is now actively working with at least 4-5 conferences/workshops looking to move completely online or add an online component as they have their conferences delayed.

(3) Launched from the OEC and related webinar, we have two unique initiatives which will kick off at the beginning of April:

- [Online office hours](#) from peer mentors.
- [Teacher talk](#) resources page. (This page is an attempt to bridge a resource with how it is used in the classroom - a barrier for OER resource adoption.)

## Are we reaching our intended audience?

The education [community metrics](#) show hundreds of unique visitor pages views. We are seeing that rapid publishing of educational materials is key. Shared on our online site under [COVID-19 resources](#) include some recently published on QUBES.

- This [SEIR worksheet](#) which uses R was published on March 12 and already has 325 views and 69 downloads just 10 days after upload.
- This [SEIR worksheet for calculus](#) has 333 views and 49 downloads, just one week after being published on March 19.

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The International Symposium on Biomathematics Ecology Education and Research (BEER) 2020 is scheduled for October 9-11, 2020 at the University of Richmond in Richmond, VA.

The [Intercollegiate Biomathematics Alliance](#) is a consortium created to promote research and education in biomathematics. The IBA strives to bring together institutions both academic and non-academic to build a collaborative academic community in the pursuit of advancing biomathematics, ecology, and related areas for the researchers, educators of the mathematical and biological sciences, and active scholars. In doing so, the IBA provides a wide range of expertise, resources, and opportunities that are only available when we work together as a community. For more information, visit: <https://about.illinoisstate.edu/iba/pages/default.aspx>

Some of the highlighted programs of the IBA are as follows:

**BEAM:** Biomathematics Education with Applications and Methods Grant

**BEER:** Biomathematics and Ecology Education and Research Symposium

**CLOUD:** Cloud for Layering, Organizing, and Utilizing Data

**CURE:** Cross-institutional Undergraduate Workshop Experience Workshop

**OUR-BEST:** Outstanding Undergraduate Research in Biomathematics Education, Scholarship, and Teaching Prize

**PEER:** Partners in Extending Education and Research

**IBA-GCP:** IBA Graduate Certificate Program

**LiB:** the journal *Letters in Biomathematics*

**Spora:** a journal dedicated to research conducted by graduate or undergraduate students.

Please contact the IBA Outreach Coordinator, Hannah Highlander at [highland@up.edu](mailto:highland@up.edu), for more information.