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All program content is current as of July 8, 2019.

Join the conversation!  
#ASMCUE

Download the official conference mobile app for the most up-to-date and detailed information.

facebook.com/asmfan  
@ASMicrobiology ASMCUE  
linkedin.com/company/45861  
instagram.com/asmicrobiology ASMCUE
On behalf of the Planning Committee, welcome to the ‘CUEmmunity!

We are excited to have educators from across the country and around the world join us in Tysons, VA, for the 26th American Society for Microbiology Conference for Undergraduate Educators (ASMCUE). We hope that you enjoy your time at ASMCUE, as you gain knowledge and make connections that will extend far beyond your time here!

The ASMCUE program has historically engaged attendees in innovative, relevant, and thought-provoking learning experiences. This year, the Planning Committee blended our traditional programming with expanded opportunities for discussion, collaboration, and networking through a variety of events, including:

- Five plenary sessions focusing on science and education topics, featuring:
  - Dr. Peggy Cotter, University of North Carolina – Chapel Hill
  - Dr. Beronda Montgomery, Michigan State University
  - Dr. Louise Temple, James Madison University (2019 ASM Carski Award Recipient)
  - Dr. Stanley Maloy, San Diego State University
  - Dr. Bryan Dewsbury, University of Rhode Island
- An expanded number of concurrent scientific update sessions, spanning a variety of microbiology, biotechnology, public health, and microbial ecology topics.
- Concurrent education sessions and poster sessions, where you can learn from your colleagues about innovative teaching techniques and evidence-based practices to adapt and incorporate into your own classes.
- Interactive Microbrew Sessions, during which colleagues will share brewing ideas in biology education, and, for the first time, a dedicated session for you to ferment your own ideas as you discuss the Microbrew topics with presenters and colleagues.
- A chance to network and learn about potential collaborations with your colleagues on grant-funded and non-profit efforts to improve student learning and mentoring in the life sciences at the Dissemination Station Resource Fair.
- Additional opportunities for connecting at our opening networking dinner and affinity dinners.

New to ‘CUE? We know there is a lot to take in as a new attendee, so we invite you to a First-Timers session to learn the ins-and-outs of ASMCUE and meet some “experienced” attendee buddies!

Most importantly, we want to thank you for your contributions to the conference. Without you, ASMCUE would not be possible! So get ready to learn and connect over the next few days! We are so glad you could join us!

Warm regards,

Jaclyn A. Madden
Planning Committee Chair
# Schedule at a Glance

**Thursday, August 1**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 a.m. – 10:00 a.m.</td>
<td>Tour of Outbreak Exhibit at National Museum of Natural History</td>
</tr>
<tr>
<td>10:00 a.m. – 8:00 p.m.</td>
<td>Attendee Registration</td>
</tr>
<tr>
<td>11:00 a.m. – 4:00 p.m.</td>
<td>Pre-Conference Workshops - Registration Required</td>
</tr>
<tr>
<td>4:30 p.m. – 5:45 p.m.</td>
<td>ASM Welcome &amp; Opening Scientific Plenary <em>(Peggy Cotter)</em></td>
</tr>
<tr>
<td>6:00 p.m. – 6:45 p.m.</td>
<td>Networking Dinner</td>
</tr>
<tr>
<td>7:00 p.m. – 7:45 p.m.</td>
<td>Concurrent Education Sessions</td>
</tr>
<tr>
<td>8:00 p.m. – 9:00 p.m.</td>
<td>Welcome Reception &amp; Networking</td>
</tr>
</tbody>
</table>

**Friday, August 2**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>7:00 a.m. – 7:45 a.m.</td>
<td>Networking Breakfast by Geographical Locations</td>
</tr>
<tr>
<td>7:00 a.m. – 12:00 p.m.</td>
<td>Attendee Registration</td>
</tr>
<tr>
<td>8:00 a.m. – 8:45 a.m.</td>
<td>Concurrent Education Sessions</td>
</tr>
<tr>
<td>9:00 a.m. – 9:45 a.m.</td>
<td>Concurrent Education Sessions</td>
</tr>
<tr>
<td>10:00 a.m. – 10:45 a.m.</td>
<td>Concurrent Education Sessions</td>
</tr>
<tr>
<td>11:00 a.m. – 12:00 p.m.</td>
<td>Scientific Plenary <em>(Beronda Montgomery)</em></td>
</tr>
<tr>
<td>12:15 p.m. – 1:15 p.m.</td>
<td>Lunch</td>
</tr>
<tr>
<td>12:30 p.m. – 1:45 p.m.</td>
<td><em>Journal of Microbiology &amp; Biology Education (JMBE)</em> Office Hours</td>
</tr>
<tr>
<td>1:00 p.m. – 5:00 p.m.</td>
<td>Exhibitor Registration</td>
</tr>
<tr>
<td>1:15 p.m. – 2:15 p.m.</td>
<td>Dissemination Station Resource Fair</td>
</tr>
<tr>
<td>1:15 p.m. – 2:15 p.m.</td>
<td>Lux Art Painting</td>
</tr>
<tr>
<td>2:00 p.m. – 5:30 p.m.</td>
<td>Exhibitor Move-In</td>
</tr>
<tr>
<td>2:30 p.m. – 3:15 p.m.</td>
<td>Concurrent Scientific Updates</td>
</tr>
<tr>
<td>3:30 p.m. – 4:15 p.m.</td>
<td>Concurrent Education Sessions</td>
</tr>
<tr>
<td>4:30 p.m. – 5:30 p.m.</td>
<td>Microbrew Sessions 1</td>
</tr>
<tr>
<td>5:45 p.m. – 6:30 p.m.</td>
<td>Concurrent Scientific Updates</td>
</tr>
<tr>
<td>6:30 p.m. – 8:30 p.m.</td>
<td>Exhibit and Poster Hall Hours</td>
</tr>
<tr>
<td>7:00 p.m. – 8:15 p.m.</td>
<td>Product and Author Corners</td>
</tr>
</tbody>
</table>
### Saturday, August 3

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>7:00 a.m. – 7:45 a.m.</td>
<td>Networking Breakfast by Topic Areas</td>
</tr>
<tr>
<td>8:30 a.m. – 3:30 p.m.</td>
<td>Exhibit and Poster Hall Hours</td>
</tr>
<tr>
<td>8:45 a.m. – 9:45 a.m.</td>
<td>Poster Session A</td>
</tr>
<tr>
<td>9:00 a.m – 11:45 a.m.</td>
<td>Product and Author Corners</td>
</tr>
<tr>
<td>9:15 a.m. - 9:45 a.m.</td>
<td>Refreshment Break in Exhibit and Poster Hall (Supported by Pearson)</td>
</tr>
<tr>
<td>10:00 a.m. – 10:45 a.m.</td>
<td>Concurrent Scientific Updates</td>
</tr>
<tr>
<td>11:00 a.m. – 12:00 p.m.</td>
<td>Carski Plenary Lecture (Louise Temple)</td>
</tr>
<tr>
<td>12:15 p.m. – 1:15 p.m.</td>
<td>Lunch</td>
</tr>
<tr>
<td>12:30 p.m. – 1:45 p.m.</td>
<td>Journal of Microbiology &amp; Biology Education (JMBE) Office Hours</td>
</tr>
<tr>
<td>1:00 p.m – 2:15 p.m.</td>
<td>Product and Author Corners</td>
</tr>
<tr>
<td>1:30 p.m. – 2:30 p.m.</td>
<td>Poster Session B</td>
</tr>
<tr>
<td>2:45 p.m. – 3:40 p.m.</td>
<td>Microbrew Session D - F</td>
</tr>
<tr>
<td>3:30 p.m. – 5:00 p.m.</td>
<td>Exhibitor Move-Out and Poster Take-Down</td>
</tr>
<tr>
<td>4:00 p.m. – 4:55 p.m.</td>
<td>Microbrew Session G - I</td>
</tr>
<tr>
<td>5:15 p.m. – 6:15 p.m.</td>
<td>Microbrew Incubation Station</td>
</tr>
<tr>
<td>5:30 p.m. – 6:30 p.m.</td>
<td>Tour of Outbreak Exhibit at National Museum of Natural History</td>
</tr>
<tr>
<td>7:00 p.m. – 7:30 p.m.</td>
<td>Lux Art Viewing</td>
</tr>
<tr>
<td>7:00 p.m. – 9:00 p.m.</td>
<td>REMnet Organizational Meeting</td>
</tr>
<tr>
<td>7:00 p.m.</td>
<td>Affinity Dinners– Topical Dinner Groups (sign-ups on site)</td>
</tr>
</tbody>
</table>

### Sunday, August 4

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 a.m. – 9:00 a.m.</td>
<td>Breakfast on your own</td>
</tr>
<tr>
<td>9:00 a.m. – 10:00 a.m.</td>
<td>Closing Scientific Plenary (Stanley Maloy)</td>
</tr>
<tr>
<td>10:15 a.m. – 11:15 a.m.</td>
<td>Closing Education Plenary (Bryan Dewsbury)</td>
</tr>
<tr>
<td>11:15 a.m. – 11:30 a.m.</td>
<td>Closing Remarks - Jaclyn Madden</td>
</tr>
</tbody>
</table>
All conference events will be held at the Sheraton Tysons Hotel.

**Registration**

Attendee registration is located in the Fairfax Ballroom Foyer. Collect your name badge and program materials at the registration desk. A name badge is required for entry into all sessions and meals.

All ASMCUE attendees are required to wear conference badges onsite at all times. Badges give you access to sessions, the exhibit hall, and workshops.

**Thursday, August 1**
10:00 a.m. – 8:00 p.m.

**Friday, August 2**
7:00 a.m. – 12:00 p.m.

*Exhibitor registration is located outside Fairfax Ballroom B.*

**Friday, August 2**
1:00 p.m. – 5:00 p.m.

**Wifi at ASMCUE**

Network ID: ASM
Password: 2019ASMCUE

** ASM Events Code of Conduct**

The American Society for Microbiology (“ASM”) is the main forum for microbiological sciences that considers and debates scientific issues in an orderly, respectful, and fair manner. The ASM is committed to providing an environment that encourages the free expression and exchange of scientific ideas and promotes equal opportunities and respectful treatment for all participants. All participants are expected to treat others with respect and consideration, follow venue rules, and alert ASM staff or security of any dangerous situations or anyone in distress.

ASM prohibits and will not tolerate any form of harassment or bullying at its events. Read the full policy at asm.org/codeofconduct.

**Cell Phone Usage**

Out of consideration for your ASMCUE colleagues, all cell phones must be turned off or silenced in session rooms.

**Photo Policy**

By registering for ASMCUE, you agree to allow ASM/ASMCUE to use any photos taken of you during the conference in news media, website, publications, articles, marketing pieces, etc. In order to protect data shared during

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**Meals**

Registration includes the following networking meals:

- **Thursday**: Dinner and Welcome Reception
- **Friday**: Breakfast and Lunch
- **Saturday**: Breakfast and Lunch

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**ASMCUE Guidebook Mobile App**

Get the latest conference program, exhibitor information, and much more with the ASMCUE Mobile App. Download Guidebook from your app store and search for ‘ASMCUE 2019’ to retrieve the most up-to-date conference program.
presentations, no photos may be taken of posters or scientific session slides at ASMCUE.

**Exhibit and Poster Hall**
Fairfax Ballroom B

**Friday, August 2**
6:30 p.m. – 8:30 p.m.

**Saturday, August 3**
8:30 a.m. – 3:30 p.m.

**Poster Presentations**
Poster presentations will be held in the Fairfax Ballroom B. Posters will be available for viewing during Exhibit Hours, with official poster sessions scheduled for Saturday morning (Session A) and afternoon (Session B). To see poster abstracts, please see the Guidebook app.

**Set-up**
Friday, August 2
2:00 p.m. – 5:30 p.m.

**Poster Session A**
Saturday, August 3
8:45 a.m. – 9:45 a.m.

**Poster Session B**
Saturday, August 3
1:30 p.m. – 2:30 p.m.

**Take-Down**
Saturday, August 3
3:30 p.m. – 5:00 p.m.

**Social Media Etiquette**
While attending any ASM meeting, as well as when interacting with ASM on social media, ASM expects that all attendees will contribute to the professional atmosphere of the meeting. ASM and the Program Committee reserve the right to remove, delete, or block any individuals or social media comments exhibiting behavior that detracts from or disrupts the environment.

**General Information**

**ASMCUE Highlights**

**Spirit Days**
Friday, August 2: College and University Spirit Day
Show us your school spirit! Represent your institution by sporting your institution’s paraphernalia (e.g. jacket, t-shirts, ties, polo’s, and etc).

**Saturday, August 3: Identify your Community Day**
Represent your institution type by wearing your “community” colors.

- Community College: **BLUE**
- Undergraduate Institution: **GREEN**
- Comprehensive University: **ORANGE**
- Doctoral-Degree Granting Institution: **RED**
- International Institution: **PURPLE**

**Dissemination Station Resource Fair**
Are you a part of a network or collaboration that is looking for an opportunity to share your work with others or foster new collaborations?

ASMCUE will host a Dissemination Station Resource Fair in the Fairfax Ballroom Foyer on **Friday, August 2, 1:15 p.m. – 2:15 p.m.** This event allows
attendees to share progress on relevant projects/programs with colleagues in an effort to find collaborators and solicit feedback.

**Affinity Dinners (Saturday Evening)**
Continue networking with ASMCUE attendees on varied topical areas beginning at 7:00 p.m. Sign-up is available at the Registration Desk.

**Lux Art**
Join Mark Martin in this two-part activity. On **Friday, August 2, 1:15 p.m. – 2:15 p.m. in Ash Grove Ballroom A**, attendees “paint” their designs. A little more than 24 hours later, on **Saturday, August 3, 7:00 p.m. – 7:30 p.m. in Ash Grove Ballroom B**, microbes would have incubated for the final part of the activity.

**ASMCUE Buddy Program**
New to the ASMCUE conference? Organized by Patty Shields, the ASMCUE Buddy Program encourages first-time attendees to seek out veteran attendees (attended ASMCUE three or more years) wearing a “buddy” pin. Buddies are encouraged to enhance the ASMCUE experience for first-timers.

Interested in serving as a Buddy?
Review these expectations. You can pick up your button at the Registration Desk.

**JMBE Office Hours**
Ash Grove Ballroom B
**Friday, August 2**
**Saturday, August 3**
12:30 p.m. – 1:45 p.m.

**Tour of Outbreak Exhibit**
**Location:** National Museum of Natural History
**Thursday, August 1**
9:00 a.m. – 10:00 a.m.

**Microbrew Incubation Station**
On **Saturday, August 3, from 5:15 p.m. to 6:15 p.m.**, ASMCUE is providing an opportunity for faculty presenting similar interests to discuss, collaborate, refine, and plan for the next steps in regards to their microbrew activities.

This session will provide insight to Microbrew presenters who are demonstrating activities that are a work in progress. These presenters will receive feedback from their colleagues in an effort to improve their learning activity. If you’ve presented a microbrew this year or have ideas to discuss regarding a microbrew you’ve seen, this is the place for you.

- **Activity: Allied Health-Immunology**
  Ash Grove Ballroom A
- **Skills/Learning/Metacognition**
  Ash Grove Ballroom B
- **Lab (Fermentation/CURE)**
  Ash Grove Ballroom C
- **Activity: Cell Biology/Microbiology**
  Potomac
- **Microbiome**
  Great Falls
- **Miscellaneous**
  Vienna
2019 Travel Awardees

Lubna Abu-Niaaj  
Central State University  
Wilberforce, OH

Maria Bonatelli,  
ESALQ/USP  
Piracicaba, Brazil

Tess Eidem  
Paul Smith's College  
Paul Smiths, NY

Martina Gonzalez Mateu  
University of Maryland, College Park  
College Park, MD

Maria Guerrero  
Miami Dade College  
Miami, FL

Jennifer Huddleston  
Abilene Christian University  
Abilene, TX

Ally Hunter  
University of Massachusetts, Amherst  
Amherst, MA

Medora Huseby  
Colorado State University  
Fort Collins, CO

Aida Jimenez Esquilin  
University of Charleston  
Beckley, WV

Jessica Joyner  
Georgia State University  
Atlanta, GA

Courtney Kleeschulte  
Binghamton University  
Binghamton, NY

Emily Nowicki  
Curry College  
Quincy, MA

Matthew Nusnbaum  
Georgia State University  
Atlanta, GA

Laura Oliveira  
Federal University of Rio de Janeiro  
Rio de Janeiro, Brazil

Tatiana Pinto  
Federal University of Rio de Janeiro  
Rio de Janeiro, Brazil

Amy Stone  
Touro University Nevada  
Henderson, NV

Special Recognition: Burroughs Wellcome Fund and Howard Hughes Medical Institute

2019 Textbook Travel Award Winner

Kari Debbink, Bowie State University, Bowie, MD

This honor is awarded to an emerging leader in biology education and research. Funding for the Textbook Travel Award derives from a special endowment created in 2008 by several textbook authors committed to faculty development and ASMCUE. The authors sponsoring this endowment include Robert Bauman at Amarillo College, Texas; Bary Chess at Pasadena City College, California; Marjorie Cowan at Miami University, Ohio; Jeffrey Pommerville at Glendale Community College, Arizona; Kathleen Talaro at Pasadena City College, California; and Christopher Woolverton at Kent State University, Ohio.
Thursday, August 1
4:45 p.m. – 5:45 p.m.

OPENING SCIENTIFIC PLENARY
CDI/CDS System-Mediated Cooperation, Competition, and DNA Transposition in Burkholderia
Peggy Cotter, Ph.D.
University of North Carolina – Chapel Hill, Chapel Hill, NC

Friday, August 2
11:00 a.m. – 12:00 p.m.

SCIENTIFIC PLENARY
Shaping up and Responding: Color Vision and Light-Dependent Developmental Plasticity in Cyanobacteria
Beronda Montgomery, Ph.D.
Michigan State University, East Lansing, MI

Saturday, August 3
11:00 a.m. – 12:00 p.m.

CARSKI PLENARY LECTURE
Addicted to Students: 25 Years of Doing Microbiology with Undergraduates
Louise Temple, Ph.D.
James Madison University, Harrisonburg, VA

Sunday, August 4
9:00 a.m. – 10:00 a.m.

CLOSING SCIENTIFIC PLENARY
Phage and the Evolution of New Infectious Diseases
Stanley Maloy, Ph.D.
San Diego State University, San Diego, CA

Sunday, August 4
10:15 a.m. – 11:15 a.m.

CLOSING EDUCATION PLENARY
Teaching for Meaning and Purpose
Bryan Dewsbury, Ph.D.
University of Rhode Island, Kingston, RI
Concurrent Scientific Update Speakers

Friday, August 2
2:30 p.m. – 3:15 p.m.

Sewage Will Save the World: Bacteriophage as a Cure for Superbugs
Greg Merril
Adaptive Phage Therapeutics
Gaithersburg, MD

From Amoebae to Macrophages: Molecular Mechanisms of Legionella pneumophila Pathogenesis
Ramona Neunuebel, Ph.D
University of Delaware
Newark, DE

Classroom Studies of Adaptations by Pseudomonas in Biofilms Provide Mechanistic Insight into Evolution during Chronic Infections
Vaughn Cooper, Ph.D.
University of Pittsburgh
Pittsburgh, PA

Friday, August 2
5:45 p.m. – 6:30 p.m.

Dynamics of Viral Infections in Natural Bacterial Populations in the Chesapeake Bay
Sarah Preheim
The Johns Hopkins University
Baltimore, MD

Saturday, August 3
10:00 a.m. – 10:45 a.m.

Bacterial Indicators of Concrete Structural Health
Julia Maresca, Ph.D.
University of Delaware
Newark, DE

The Public Health Response to the Measles Outbreak
Anthony Tran, Ph.D.
DC Public Health Laboratory, Washington, DC

Host Defense against Fungi
Michail Lionakis, M.D., Sc.D.
National Institute of Allergy and Infectious Diseases
Bethesda, MD
Thursday, August 1

9:00 a.m. – 10:00 a.m.
Tour of Outbreak Exhibit at National Museum of Natural History (advance sign-up required)

10:00 a.m. – 8:00 p.m.
Registration | Fairfax Ballroom Foyer

11:00 a.m. – 4:00 p.m.
PRE-CONFERENCE WORKSHOPS
(4 Workshop Options)

**Session 1 | Ash Grove Ballroom A**

*NSF Proposal Writing and Merit Review*
- V. Celeste Carter, Ph.D., National Science Foundation, Alexandria, VA
- Rupa Iyer, Ph.D., National Science Foundation, Alexandria, VA
- Pushpa Ramakrishna, Ph.D., National Science Foundation, Alexandria, VA

**Session 2 | Potomac**

*Presenting Case Studies to Build Quantitative Skills Using HHMI Biointeractive Resources*
- Parks Collins, M.A., Mitchell Community College, Statevilles, NC

**Session 3 | Ash Grove Ballroom C**

*Characterizing Hypothetical Proteins Using a Novel Classroom Bioinformatic Project*
- Laura Harris, M.A., Davenport University, Lansing, MI
- Kuana School, M.A., Davenport University, Lansing, MI

**Session 4 | Ash Grove Ballroom B**

*Course-Based Student Microbiome Research*
- Bruce Nash, Ph.D., Cold Spring Harbor, Cold Spring, NY

4:30 p.m. – 5:45 p.m.
Welcome/Opening Keynote Address
Fairfax Ballroom A

OPENING SCIENTIFIC PLENARY SESSION:
CDI/CDS System-Mediated Cooperation, Competition, and DNA Transposition in Burkholderia
- Peggy A. Cotter, Ph.D., University of North Carolina – Chapel Hill, Chapel Hill, NC

6:00 p.m. – 6:45 p.m.
Networking Dinner | Tysons Ballroom

7:00 p.m. – 7:45 p.m.
CURRENT EDUCATION SESSIONS
(5 Session Options)

**Session 1 | Ash Grove Ballroom A**

*Teaching about Vaccines Using a Discovery-Based Activity*
- Rebecca Achterman Rashid, Ph.D., Bastyr University, Kenmore, WA
- Cecilia Gilmore, Ph.D., Bastyr University, Kenmore, WA
- Anjali Vaidya, Ph.D., Bastyr University, Kenmore, WA

**Session 2 | Ash Grove Ballroom C**

*Animating Science: Enhancing Biological Science Education with Student-Created Animations*
- Helen Abud, Ph.D., Monash University, Clayton, Victoria, Australia
- Priscilla Johannesen, Ph.D., Monash University, Clayton, Victoria, Australia
- Danielle Rhodes, Ph.D., Monash University, Clayton, Victoria, Australia
Session 3 | Potomac
DIY: Improving Students’ Skills and Interest in Science Communication

- Maria Leticia Bonatelli, Ph.D., Universidade Federal de Sao Paulo, Sao Paulo, Brazil
- Laura Maria Oliveira, Ph.D., Universidade Federal de Juiz de Fora, Minas Gerais, Brazil
- Tatiana Pinto, Ph.D., Federal University of Rio de Janeiro, Brazil

Session 4 | McLean
Fostering a Growth Mindset to Promote Student Success from Root to S.T.E.M.

- Lourdes Norman-McKay, Ph.D., Florida State University, Saint Johns, FL

Session 5 | Ash Grove Ballroom B
ASM Biosafety Guidelines 2.0: Changes envisioned after 7 years of use

- Jeffrey J. Byrd, Ph.D., St. Mary’s College, St. Mary’s City, MD

8:00 p.m. – 9:00 p.m.
Welcome Reception and Networking
Fairfax Ballroom Foyer

Friday, August 2

7:00 a.m. – 7:45 a.m.
Networking Breakfast | Tysons Ballroom

7:00 a.m. – 12:00 p.m.
Registration | Fairfax Ballroom Foyer

8:00 a.m. – 8:45 a.m.
CONCURRENT EDUCATION SESSIONS (5 Session Options)

Session 1 | Ash Grove Ballroom C
The Outbreak Public Forum, a Game-Based Tool for Science Education (Part 1)

- Ashley Peery, B.A., Smithsonian’s Natural History Museum, Washington, DC

Session 2 | Potomac
Incorporating Science Communication into Undergraduate STEM Courses

- Scott Banville, Ph.D., Nicholls State University, Thibodaux, LA
- Aimee Hollander, Ph.D., Nicholls State University, Thibodaux, LA

Session 3 | Great Falls
Teaching Undergraduate Genomics with Galaxy (Part 1)

- Mo Heydarian, Ph.D., Galaxy Project – The Johns Hopkins University, Baltimore, MD
- James Taylor, Ph.D., The Johns Hopkins University, Baltimore, MD

Session 4 | McLean
Developing Concept Inventories: A Focused Assessment of Core Skills and Identify Common Student Misconceptions about Pedigrees and Mutations

- Nancy Boury, Ph.D., Iowa State University, Ames, IA
- Rebecca L. Seipelt-Thiemann, Ph.D., Middle Tennessee State University, Murfreesboro, TN

Session 5 | Ash Grove Ballroom B
CRISPR 101: A Hands-On Tool to Teach How CRISPR Works and Applications of This Technology

- Alexandra S. Fairfield, Ph.D., Montgomery College, Takoma Park, MD

9:00 a.m. – 9:45 a.m.
CONCURRENT EDUCATION SESSIONS (5 Session Options)

Session 1 | Ash Grove Ballroom C
The Outbreak Public Forum, a Game-Based Tool for Science Education (Part 2)

- Katherine Lontok, Ph.D., American Society for Microbiology, Washington D.C.
- Ashley Peery, Ph.D., Smithsonian’s Natural History Museum, Washington, D.C.
Session 2 | Potomac

CACAO: Teaching Critical Reading through Biocuration

- Ivan Erill, University of Maryland, Baltimore County, Baltimore, MD
- James Hu, Ph.D., Texas A&M University, College Station, TX
- Jolene Ramsey, Ph.D., Texas A&M University, College Station, TX

Session 3 | Great Falls

Resources and Recommendations for Teaching Undergraduate Genomics with Galaxy (Part 2)

- Mo Heydarian, Ph.D., Galaxy Project – The Johns Hopkins University, Baltimore, MD
- James Taylor, Ph.D., The Johns Hopkins University, Baltimore, MD

Session 4 | McLean

Using Learning Management System Usage Data to Help Students Improve Engagement Practices: Lessons Learned at Colorado State University

- Priya Harindranathan, Ph.D., Colorado State University, Fort Collins, CO
- James Folkstead, Ph.D., Colorado State University, Fort Collins, CO
- Erica Suchman, Ph.D., Colorado State University, Fort Collins, CO

Session 5 | Ash Grove Ballroom B

Implementing Concept Inventories: Using the Microbiology Concept Inventory (MCI) to Resolve Student Misconceptions

- Amy Briggs, Ph.D., Beloit College, Beloit, WI
- Timothy A. Paustian, Ph.D., University of Wisconsin-Madison, Madison, WI

Session 1 | Ash Grove Ballroom C

Who Am I in STEM?: Identifying Your Narrative to Create a More Inclusive Classroom (Part 1)

- Ally Hunter, M.D., Ph.D., University of Massachusetts, Amherst, Amherst, MA
- Melissa Zwick, Ph.D., Stockton University, Galloway, NJ

Session 2 | Potomac

The Mini-Manuscript: An Incremental Approach to Teach Science Communication Skills

- Martina Ederer, Ph.D., University of Idaho, Moscow, ID
- Trish L. Hartzell, Ph.D., University of Idaho, Moscow, ID

Session 3 | Great Falls

A Faculty Network for Exploring Gene Function in Yeast

- Jill Beck Keeney, Ph.D., Juniata College, Huntingdon, PA
- Tammy Tobin, Ph.D., Susquehanna University, Selinsgrove, PA

Session 4 | McLean

If You Build it, They Will Come: Creating Connections between Students and Knowledge in Varied Learning Environments

- Jennifer A. Herzog, Herkimer College, Herkimer, NY
- Mary V. Mawn, Ph.D., SUNY Empire State College, Saratoga Springs, NY
- Philip F. Mixter, Ph.D., Washington State University, Pullman, WA

Session 5 | Ash Grove Ballroom B

Documenting your Teaching for Promotion and/or Tenure (Professional Development for Instructors)

- Philip F. Mixter, Ph.D., Washington State University, Pullman, WA
- Erica Suchman, Ph.D., Colorado State University, Fort Collins, CO
11:00 a.m. – 12:00 p.m.
SCIENTIFIC PLENARY SESSION
Fairfax Ballroom A

Shaping Up and Responding: Color Vision and Light-Dependent Developmental Plasticity in Cyanobacteria
  • Beronda Montgomery, Ph.D., Michigan State University, East Lansing, MI

12:15 p.m. – 1:15 p.m.
Networking Lunch | Tysons Ballroom

12:30 p.m. – 1:45 p.m.
JMBE Office Hours | Ash Grove Ballroom B

1:15 p.m. – 2:15 p.m.
Lux Art Painting | Ash Grove Ballroom A

1:15 p.m. – 2:15 p.m.
Dissemination Station Resource Fair
Fairfax Ballroom Foyer

2:00 p.m. – 5:30 p.m.
Exhibitor Move-In

2:30 p.m. – 3:15 p.m.
CONCURRENT SCIENTIFIC UPDATES
(3 Session Options)

Session 1 | Ash Grove Ballroom C
Sewage Will Save the World: Bacteriophage as a Cure for Superbugs
  • Greg Merril, Ph.D., Adaptive Phage Therapeutics, Gaithersburg, MD

Session 2 | Potomac
From Amoebae to Macrophages: Molecular Mechanisms of Legionella pneumophila Pathogenesis
  • Ramona M. Neunuebel, Ph.D., University of Delaware, Newark, DE

3:30 p.m. – 4:15 p.m.
CONCURRENT EDUCATION SESSIONS
(5 Session Options)

Session 1 | Ash Grove Ballroom C
Improving Cultural Competence in the STEM Classroom (Part 2)
  • Ally Hunter, Ph.D., University of Massachusetts, Amherst, Amherst, MA
  • Melissa Zwick, Ph.D., Stockton University, Galloway, NJ

Session 2 | Potomac
Bring Steven Spielberg to Your Classroom!
  • Mike Keller, Ph.D., University of Maryland, College Park, College Park, MD
  • Patty Shields, Ph.D., University of Maryland, College Park, College Park, MD

Session 3 | Great Falls
Engaging Students to Ask Scientific Questions through the Use of Images and Data
  • Dave Westenberg, Ph.D., Missouri S&T, Rolla, MO

Session 4 | McLean
Boost Multiple-Choice Exam Performance by Enlisting Students in Writing the Exam
  • Timothy David Paustian, Ph.D., University of Wisconsin, Madison, Madison, WI

Session 5 | Ash Grove Ballroom B
Incorporating Scientific Primary Literature in the Classroom: An Introduction to Several Techniques and The Pro’s and Con’s of each
  • J. Jordan Steel, Ph.D., USAF Academy, Colorado
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<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Room</th>
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<tr>
<td>4:30 p.m. – 4:45 p.m.</td>
<td>Microbrew Session A (5 session options)</td>
<td>Ash Grove Ballroom C</td>
<td>Activity – (Cell Biology)</td>
<td>Learning in 3D: Using Student Designed 3D Modeling to Teach Biological Macromolecules in an Introductory Course</td>
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<td>• Jessica Fry, Curry College, Milton, MA</td>
<td>• Emily Nowicki, Curry College, Milton, MA</td>
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<td>Learning/Metacognition</td>
<td>Do Exam Correction Assignments Improve Student Learning?</td>
<td>• Lawrence Hobbie, Adelphi University, Garden City, NY</td>
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<td>Skills – (Critical Thinking)</td>
<td>Using Health Claims on Food Packages to Teach Critical Thinking</td>
<td>• Linda McPherson, Berkeley City College, El Cerrito, CA</td>
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<td>Lab – (Fermentation)</td>
<td>Bootleg Biology: A microbiology CURE based on Brewing with Wild Yeast</td>
<td>• Brian DeHaven, La Salle University, Philadelphia, PA</td>
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<td>Miscellaneous</td>
<td>Hosting Office Hours in Sweats: Using Real-Time Video Study Sessions</td>
<td>• Olivia Long, University of Pittsburgh at Greensburg, Greensburg, PA</td>
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<tr>
<td>5:10 p.m. – 5:25 p.m.</td>
<td>Microbrew Session C (4 session options)</td>
<td>Ash Grove Ballroom C</td>
<td>Activity – (Microbiology)</td>
<td>A Classroom Activity Designed to Facilitate More Active Learning of Genetic Cloning</td>
<td>• Katriana Popichak, Colorado State University, Fort Collins, CO</td>
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</table>
Microbrew Session 2C | Ash Grove Ballroom B

**Track: Learning/Metacognition**

*Metacognitive “cool downs:” Using the End class to Elucidate Student Relevance of Course Topics*

- Joyce Davis, Carroll Community College, Westminster, MD
- Stacy Zell, Carroll Community College, Westminster, MD

Microbrew Session 3C | Potomac

**Track: Skills – (Critical Thinking)**

*Sherlock & Watson: Finding Logical Errors in the Literature using Case-embedded Detective Games*

- Gundula Bosch, The Johns Hopkins University, Reisterstown, MD

Microbrew Session 4C | Great Falls

**Track: Lab – (Fermentation)**

*The LIFT project: An approach to integrate undergraduate education and interdisciplinary research*

- Dongjin ‘Jade’ Park, University of Nebraska-Lincoln, Lincoln, NE

5:45 p.m. – 6:30 p.m.
CONCURRENT SCIENTIFIC UPDATES
(3 Session Options)

Session 1 | Ash Grove Ballroom C

*Dynamics of Viral Infections in Natural Bacterial Populations in the Chesapeake Bay*

- Sarah Preheim, Ph.D., Johns Hopkins University, Baltimore, MD

Session 2 | Great Falls

*A Robust Laboratory Exercise for the Instruction of CRISPR-directed Gene Editing*

- Eric B. Kmiec, Ph.D., Christiana Care Health System, Gene Editing Institute, Wilmington, DE

Session 3 | Potomac

*Breaking the DNA Speed Limit: How Emerging Single-Stranded DNA Viruses Evolve as Fast as RNA Viruses*

- Siobain Duffy, Ph.D., Rutgers University, New Brunswick, NJ

6:30 p.m. – 8:30 p.m.
Exhibit and Poster Hall Opening
Fairfax Ballroom B

7:00 p.m. – 7:30 p.m.
Bio-Rad Laboratories Product Corner
Ash Grove Ballroom A

7:45 p.m. - 8:15 p.m.
Illuminia, Inc. Product Corner
Ash Grove Ballroom A

Saturday, August 3

7:00 a.m. – 7:45 a.m.
Networking Breakfast | Tysons Ballroom

8:30 a.m. – 3:30 p.m.
Exhibit and Poster Hall Open
Fairfax Ballroom B

8:45 a.m. – 9:45 a.m.
Poster Sessions A | Fairfax Ballroom B

9:15 a.m. – 9:45 a.m.
Refreshment Break in Exhibit and Poster Hall (Supported by Pearson)
Fairfax Ballroom B

9:00 a.m. - 9:30 a.m.
Pearson Product Corner
Ash Grove Ballroom A

9:45 a.m. - 10:15 a.m.
Pearson Product Corner
Ash Grove Ballroom A
10:00 a.m. – 10:45 a.m.
CONCURRENT SCIENTIFIC UPDATES
(3 Session Options)

Session 1 | Ash Grove Ballroom C
Bacterial Indicators of Concrete Structural Health
• Julia Maresca, University of Delaware, Newark, DE

Session 2 | Potomac
The Public Health Response to the Measles Outbreak
• Anthony Tran, Ph.D., DC Public Health Laboratory, Washington, D.C.

Session 3 | Great Falls
Host Defense Against Fungi
• Michail Lionakis, M.D., Sc.D., National Institute of Allergy and Infectious Diseases, Bethesda, MD

10:30 a.m. – 11:00 a.m.
McGraw-Hill Education Author Corner
Ash Grove Ballroom A

11:00 a.m. – 12:00 p.m.
CARSKI PLENARY LECTURE
Fairfax Ballroom A

Addicted to Students: 25 Years of Doing Microbiology with Undergraduates
Fairfax Ballroom A
• Louise Temple, Ph.D., James Madison University, Harrisonburg, VA

1:00 p.m. – 1:30 p.m.
McGraw-Hill Education Product Corner | Ash Grove Ballroom A

1:30 p.m. – 2:30 p.m.
Poster Sessions B | Fairfax Ballroom B

1:45 p.m. - 2:15 p.m.
McGraw-Hill Education Product Corner | Ash Grove Ballroom A

2:45 p.m. – 3:00 p.m.
MICROBREW SESSION D
(7 Session Options)

Microbrew Session 1D | Ash Grove Ballroom A
Track: Activity – (Microbiome)
Creating a Dichotomous Key to Identify Unknowns – A Classroom Activity Demonstration
• Ned Barden, MCPHS University, Boston, MA

Microbrew Session 2D | Ash Grove Ballroom B
Track: Lab – (Microbiome)
Racing Bacteria as a Way to Introduce Students to Different Types of Bacterial Movement
• David Glick, King’s College, Mountain Top, PA

Microbrew Session 3D | Ash Grove Ballroom C
Track: Activity – (Cell Biology)
Effector Protein Movement: ER to a Target Cell
• Medora Huseby, Colorado State University, Fort Collins, CO

Microbrew Session 4D | Potomac
Track: Activity – (Allied Health)
Providing Practical Microbiology Skills for Nurses
• John Harper, Charles Sturt University, Sydney, Australia
• Thiru Vanniasinkam, Charles Sturt University, Sydney, Australia
Microbrew Session 5D | Great Falls
Track: Skills – (Literature)
Using the Primary Literature to Help Students Understand the Origin of Facts and Solve Problems
• Nickie Cauthen, LaGrange College, LaGrange, GA

Microbrew Session 6D | McLean
Track: Lab – (Fermentation)
Linking Biochemistry Concepts to Health Using Yogurt as a Model
• Mariama Ibrahim, North Carolina A&T University, Greensboro, NC
• Tahl Zimmerman, North Carolina A&T University, Greensboro, NC

Microbrew Session 7D | Vienna
Track: Skills – (Stats)
Using Repetitive Assessment to Teach Basic Skills in Statistics in an Introductory Biology Lab
• Jack Horne, University of New Orleans, New Orleans, LA

3:05 p.m. – 3:20 p.m.
Microbrew Session E (6 session options)

Microbrew Session 1E | Ash Grove Ballroom A
Track: Activity – (Microbiome)
Using Play ‘Doh!’ for Understanding
• Kari Debbink, Bowie State University, Bowie, MD

Microbrew Session 2E | Ash Grove Ballroom B
Track: Lab – (Microbiome)
Using 16S rRNA genes From Isolates to Teach Lab Techniques, Writing, and Phylogenetic Trees
• James Campbell, Northwest Missouri State University, Maryville, MO
• Jennifer Huddleston, Abilene Christian University, Abilene, TX

Microbrew Session 3E | Ash Grove Ballroom C
Track: Activity – (Cell Biology)
Life Stories: Tools for Knowledge Integration
• Boriana Marintcheva, Bridgewater State University, Bridgewater, MA

Microbrew Session 4E | Potomac
Track: Activity – (Allied Health)
Strategies for Increasing Student Engagement via Clinical Base Case Studies
• Warner Bair, Lone Star College, Cypress, TX

Microbrew Session 5E | Great Falls
Track: Skills – (Literature)
Method to Help Students Develop Understanding and Appreciation of Primary Research Articles
• Holly LaFerriere, Bemidji State University, Bemidji, MN

Microbrew Session 6E | Vienna
Track: Skills – (Figures)
Encouraging Effective Data Communication Without Limiting Self-Expression
• Claire Gordy, North Carolina State University, Raleigh, NC
• Joy Little, North Carolina State University, Raleigh, NC

3:25 p.m. – 3:40 p.m.
Microbrew Session F (7 session options)

Microbrew Session 1F | Ash Grove Ballroom A
Track: Activity – (Microbiome)
Comparing Apples and Oranges in Microbiology
• Maria Guerrero, Miami Dade College - InterAmerican Campus, Miami, FL
Microbrew Session 2F | Ash Grove Ballroom B
Track: Activity – (Microbiome)
Old School, New School – “Microbiome”
16S rRNA Sequencing Adds to Unknown Identification Methods
  • Johanna Schwingel, St. Bonaventure University, St. Bonaventure, NY

Microbrew Session 3F | Ash Grove Ballroom C
Track: Activity – (Cell Biology)
Minute to Win It- A Hands-On Active Learning Strategy to Demonstrate Basic Enzyme Kinetics
  • Sarah Rosario, Valencia College, Winter Park, FL

Microbrew Session 4F | Potomac
Track: Activity – (Allied Health)
Epidemiology Sleuths: Patient Interview Case Study to Promote Critical Thinking
  • Courtney Kleeschulte, Binghamton University, Binghamton, NY

Microbrew Session 5F | Great Falls
Track: Skills – (Literature)
Using the Structure of an Academic Argument to Decode Primary Literature with Undergraduates
  • Emily Fisher, The Johns Hopkins University, Catonsville, MD

Microbrew Session 6F | McLean
Track: Lab – (CURE)
An International Class of Studying Genetic Variations: MAOA gene as an Example
  • Chang-Hun Lee, DGIST, Daegu, South Korea

Microbrew Session 7F | Vienna
Track: Skills – (Ethics)
Assessing Student Competency in Ethical Reasoning in the Biological Sciences
  • Megan Emori, Virginia Tech, Blacksburg, VA
  • Mary Lipscomb, Virginia Tech, Blacksburg, VA

4:00 p.m. – 4:15 p.m.
Microbrew Session G (7 session options)

Microbrew Session 1G | Ash Grove Ballroom A
Track: Activity – (Microbiome)
Hands-on Horizontal Gene Transfer with Toothbrush Covers, a Straw, a Phage, and Pipe Cleaners
  • Jennifer Koehl, Saint Vincent College, Latrobe, PA

Microbrew Session 2G | Ash Grove Ballroom B
Track: Microbiome – (Lab/CURE)
REMnet: Research experiences in Microbiomes Network
  • Avrom Caplan, The City University of New York, New York, NY
  • Theodore Muth, Brooklyn College, New York, NY

Microbrew Session 3G | Ash Grove Ballroom C
Track: Activity – (Cell Biology)
Transport Cards: A Toolkit for Modeling Helping Students Visualize Transport Proteins
  • Michael Keller, University of Maryland, College Park, College Park, MD
  • Patty Shields, University of Maryland, College Park, College Park, MD

Microbrew Session 4G | Potomac
Track: Activity – (Allied Health)
Introducing Interrupted Case Studies into an Asynchronous Learning Environment
  • Derek Weber, Raritan Valley Community College, Bridgewater, NJ

Microbrew Session 5G | Great Falls
Track: Skills – (Literature)
Looking to the Future: Grant Writing Based on Independent Research in the Lab!
  • Christopher O’Connor, Maryville University, Ladue, MO
Microbrew Session 6G | McLean
Track: Miscellaneous
Demonstrating the Process of Science through Narratives about Scientific Discovery
• Brittany Anderton, iBiology, San Francisco, CA

Microbrew Session 7G | Vienna
Track: Skills
CUREs for Career Competencies
• Jessica Joyner, Georgia State University, Atlanta, GA
• Robert Maxwell, Georgia State University, Atlanta, GA

Microbrew Session 1H | Ash Grove Ballroom A
Track: Activity – (Microbiome)
B.Y.O.M. – Build Your Own Microbe – A Creation Level Culmination Project for Undergraduate Micro
• Amy Stone, Touro University Nevada, Henderson, NV

Microbrew Session 2H | Ash Grove Ballroom B
Track: Microbiome
Teaching Microbiome Using a Cloud-based User-friendly Analysis Platform
• Lewis Kim, NIH/NIAID, Rockville, MD
• Mariam Quinones, NIH/NIAID, Rockville, MD

Microbrew Session 3H | Ash Grove Ballroom C
Track: Activity – (Cell Biology)
Predicting Cellular Localization of Proteins in Cell Biology Using Signal Sequences
• Kathryn Tifft, The Johns Hopkins University, Columbia, MD

Microbrew Session 4H | Potomac
Track: Activity – (Immunology)
Making Immunological Concepts Less Intimidating Through Active Learning
• Diana Flanagan, Abilene Christian University, Abilene, TX

Microbrew Session 5H | Great Falls
Track: Skills – (Science Communication)
Clickbait? Using Science News to Improve Science Literacy and Communication in the Age of Social Media
• Jennifer Kerr, Notre Dame of Maryland University, Baltimore, MD

Microbrew Session 6H | McLean
Track: Lab
Using Tablets in a General Microbiology Laboratory Course
• Alexandra Walczak, Rutgers, The State University of New Jersey, Toms River, NJ

Microbrew Session 7H | Vienna
Track: Miscellaneous
Spreading the Outbreak: Experience from Smithsonian’s Outbreak Do-It-Yourself (DIY) Exhibit in Brazil
• Kerri Dean, Smithsonian’s National Museum of Natural History, Washington, D.C.
• Laura Oliveira, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil

4:20 p.m. – 4:35 p.m.
Microbrew Session H (7 session options)

Microbrew Session 1I | Ash Grove Ballroom A
Track: Activity – (Microbiome)
Active Learning Activities for Teaching Phylogeny and Molecular Evolution
• Dave Westenberg, Missouri S&T, Rolla, MO

Microbrew Session 1I | Ash Grove Ballroom A
Track: Activity – (Microbiome)
Active Learning Activities for Teaching Phylogeny and Molecular Evolution
• Dave Westenberg, Missouri S&T, Rolla, MO
Microbrew Session 2I | Ash Grove Ballroom B
Track: Microbiome
A Laboratory Teaching Module Examining the Microbiome of a Pond
  • Linda Robinson, University of Pennsylvania, Philadelphia, PA

Microbrew Session 3I | Ash Grove Ballroom C
Track: Activity – (Cell Biology)
T-Cell Receptor Signal Transduction Speed Dating
  • David Freier, University of Lynchburg, Lynchburg, VA

Microbrew Session 4I | Potomac
Track: Activity
Using Popular Non-Fiction Books to Stimulate Discussion of Liberal Arts Themes in Science Courses
  • Kara Mosovsky, Moravian College, Bethlehem, PA

Microbrew Session 5I | Great Falls
Track: Skills – (Writing)
Draft-Review-Integrate: A Formative Assessment Series to Develop Laboratory Research Writing Skills
  • Leigh Ann Samsa, North Carolina State University, Raleigh, NC

Microbrew Session 6I | McLean
Track: Lab – (Peer Mentoring)
Teaching Students to Lead – Working with Student Peer Mentors in a CURE
  • Ashley Nazario-Toole, University of Maryland, College Park, College Park, MD
  • Catherine Spirito, University of Maryland, Riverdale Park, MD

Microbrew Session 7I | Vienna
Track: Miscellaneous
An Introductory Biology Active Classroom: Is More Active Learning Better?
  • Richard Walker, Virginia Tech, Blacksburg, VA
  • Eric Hogan, Virginia Tech, Blacksburg, VA

5:15 p.m. – 6:15 p.m.
Microbrew Incubation Session

5:30 p.m. – 6:30 p.m.
Tour of Outbreak Exhibit at National Museum of Natural History (advance sign-up required)

7:00 p.m. – 7:30 p.m.
Lux Art Viewing

7:00 p.m. – 9:00 p.m.
REMnet Organizational Meeting

7:00 p.m.
Affinity Topical Dinner Groups

Sunday, August 4

9:00 a.m. – 10:00 a.m.
CLOSING SCIENTIFIC PLENARY
Fairfax Ballroom A
Phage and the Evolution of New Infectious Diseases
Stanley Maloy, Ph.D., San Diego State University, San Diego, CA

10:15 a.m. – 11:15 a.m.
CLOSING EDUCATION PLENARY
Fairfax Ballroom A
Teaching for Meaning and Purpose
• Bryan Dewsbury, Ph.D., University of Rhode Island, Kingston, RI

11:15 a.m. – 11:30 a.m.
Closing Remarks
Fairfax Ballroom A
• Jaclyn Madden, Harford Community College, Bel Air, MD
### Poster Session A

**Saturday, August 3**  
**8:45 a.m. – 9:45 a.m.**

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<th>How Stained Glass and Cookies Help Students Better Understand Topics in Microbiology</th>
<th>Camilla Ambivero, University of Central Florida, Orlando, FL</th>
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</table>
| A - 03 | Effects of Guided Practice in Drawing on Model-Based Reasoning and Use of Drawing for Studying | Jessica Burns, College of William and Mary, Williamsburg, VA  
Paul Heideman, College of William and Mary, Williamsburg, VA |
| A - 05 | An Examination of the Flipped Classroom’s Efficacy on Post-Baccalaureate Pre-Medical Students | Rohini Ganjoo, George Washington University, Ashburn, VA  
Archita Chandra, George Washington University, Ashburn, VA  
Genevieve Schmitt, George Washington University, Ashburn, VA |
| A - 07 | Enduring use of Learner-Generated Drawing to Learn Biology: Brief Intervention vs. Extended Practice | Paul Heideman, College of William and Mary, Williamsburg, VA |
| A - 09 | Enhancing Student Ability to Formulate Informed Reactions to Scientific Information | Kirsten Hokeness, Bryant University, Smithfield, RI |
| A - 11 | Teaching from BIG to Small and Observing Increased Student Success | Aimee Hollander, Nicholls State University, Thibodaux, LA  
Phil Menard, University of South Alabama, Mobile, AL  
Renee Hicks, Nicholls State University, Thibodaux, LA  
Stacy Pate, Nicholls State University, Thibodaux, LA |
| A - 13 | Developing STEM Identity in Female Undergraduates in a Small Private Appalachian Institution | Aida Jimenez Esquilin, University of Charleston, Charleston, WV |
| A - 15 | Increased Learning Gains from Student-Designed Microbiology Educational Materials | Alice Lee, North Carolina State University, Raleigh, NC |
| A - 17 | Developing Future Arkansas Scientists Through the STEM Scholars Scholarship Program | Laura MacDonald, Hendrix College, Conway, AR  
Leslie Zorwick, Hendrix College, Conway, AR  
Matthew Moran, Hendrix College, Conway, AR  
Dionne Jackson, Hendrix College, Conway, AR |
| A - 19 | Getting the Word Out: Lessons Learned from a Collaboration Between Content Experts and a Museum | Christopher Parker, Texas Wesleyan University, Fort Worth, TX  
Debbie Cockerham, Fort Worth Museum of Science and History, Fort Worth, TX  
Ann Foss, University of Texas at Arlington, Arlington, TX |
| A - 21 | The Impact of a Service Learning Project Focused on Handwashing and Vaccinations | Beth Potter, Penn State Behrend, Erie, PA  
Kaitlyn White, Penn State Behrend, Erie, PA  
Nathan Magee, Penn State Behrend, Erie, PA |
| A - 23 | Graduating 30% More Science Students Utilizing Science Seminar & the SLC Scholars Program | Olivia Long, University of Pittsburgh at Greensburg, Greensburg, PA |
| A - 25 | Are In-person Lectures required for 21st Century Lab Courses? | Dawn Foster-Hartnett, University of Minnesota, St. Paul, MN  
Lisa Bovenkamp, University of Minnesota, St. Paul, MN  
Anna Landherr, University of Minnesota, St. Paul, MN  
Patricia Goodman-Mamula, University of Minnesota, St. Paul, MN |
B - 02
Integration of Math in Microbiology Course Improved Student Performance and Comprehension
Galyna Kufryk, Grand Canyon University, Phoenix, AZ
Filippo Posta, Estrella Mountain Community College, Avondale, AZ

B - 04
Sketching Science: Undergraduate use of a Drawing-to-Learn Based Method to Solve Biology Problems
Emma Arents, College of William and Mary, Midlothian, VA
Emily Gericke, College of William and Mary, Williamsburg, VA
Paul Heideman, College of William and Mary, Williamsburg, VA

B - 06
Science Education Videos Improve Student Performance in Non-Major and Intermediate Biology Laboratory
Lara Goudsouzian, DeSales University, Center Valley, PA
Christine Minor, Clemson University, Clemson, SC
Karen Mutch-Jones, TERC, Cambridge, MA

B - 08
Development of a Next-Generation Sequencing Laboratory in an Upper-Level Biology Course
Laura MacDonald, Hendrix College, Conway, AR

B - 10
The Impact of an “I Don’t Know” Answer Choice in the ASM Microbiology Concept Inventory (MCI)
John Buchner, University of Maryland, College Park, College Park, MD
Martina Gonzalez Mateu, University of Maryland, College Park, College Park, MD
Ann Stevens, Virginia Tech, Blacksburg, VA
Timothy Paustian, University of Wisconsin, Madison, WI
David Popham, Virginia Tech, Blacksburg, VA
Richard Seyler, Virginia Tech, Blacksburg, VA

B - 12
Exploring Undergraduate Transfer Student Pathways and Success in Microbiology
Alexandria Ardissone, University of Florida, Gainesville, FL

B - 14
What’s the Point? Does Active Learning Modality Impact Student Gains?
Samantha Parks, Georgia State University, Atlanta, GA
Matthew Nusbaum, Georgia State University, Atlanta, GA

B - 16
Yeast OR Fan Gene Project: Finding a Place for ORFans to GO
Jill Keeney, Juniata College, Huntingdon, PA
Tammy Tobin, Susquehanna University, Selinsgrove, PA
Pamela Hanson, Birmingham-Southern College, Birmingham, AL
David Aiello, Austin College, Sherman, TX

B - 18
A Course Discussing Women In Science and Student Vision Increases Feelings of Belonging in Science
Cynthia DeBoy, Trinity Washington University, Washington, D.C.
Kaitlin Wellens, Trinity Washington University, Washington, D.C.
Patrice Moss, Trinity Washington University, Washington, D.C.
Mia Ray, Trinity Washington University, Washington, D.C.

B - 20
The Impact of Cornell Note Taking (CNT) On Student Performance and Engagement in a Large Enrollment
Bwalya Lungu, University of California, Davis, Davis, CA
Meryl Matika, University of California, Davis, Davis, CA
Tiffany Johnson, University of California, Davis, Davis, CA
Stephanie Pulford, University of California, Davis, Davis, CA

B - 22
A Continuum of Educator Metacognitive Reflection and Practice
Jessica Santangelo, Hofstra University, Hempstead, NY
Mackenzie Stephens, Hofstra University, Hempstead, NY

B - 24
Employing Instructor’s Research Experience to Actively Engage Students with the Scientific Method
Natalie van Breukelen, Salem Community College, Carneys Point, NJ
# Exhibitors

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<td>MiniOne Systems</td>
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<td>SimBio</td>
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<td>Table 16</td>
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*For full Exhibitor details, please refer to the mobile app.*
Exhibit and Poster Hall Floor Plan

(12) 3x4 boards

(13) 3x4 boards

29 33 34 35

28 25 23 22 21 20

10 11 13 14 15 16 17 18 19

9 8 7 6 5 4 3 2 1
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