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(Jeffrey T. Olimpo)

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Save the Date for ASMCUE 2019!
Mark your calendars for August 1-4, 2019 in Tysons, VA.

Follow ASM
facebook.com/asmfan
@ASMicrobiology #ASMCUE
linkedin.com/company/45861
instagram.com/asmicrobiology #ASMCUE
On behalf of the Program Planning Committee, I want to welcome you to Austin, TX, and the 25th annual American Society for Microbiology Conference for Undergraduate Educators (ASMCUE)! Regardless of whether you are a first-time attendee or a ‘CUE veteran, we are thrilled that you are able to celebrate the silver anniversary of ASMCUE with us and truly believe that ‘CUE will provide an educational “home” for you to meet fellow like-minded individuals who are committed to excellence in teaching and scholarship in the biological sciences. In turn, I want to sincerely thank each of you for your invaluable contributions to the conference. We could not do this without you!

This year, we unite in our continued effort to prepare students for the next decade and beyond – in the classroom, workplace, industry, and society. We are pleased to welcome several distinguished scientific and education speakers, who will prompt us to consider how to best achieve that goal. In addition, we trust that the numerous microbrew, poster, workshop, and concurrent sessions that you will participate in will provide you with fresh ideas and approaches that you can integrate into your classroom and at your home institution on a broader scale.

The knowledge that you acquire and the connections that you make over the next several days will extend far beyond Austin. Thank you for joining our ‘CUEmmunity!’ We look forward to a productive and enjoyable ASMCUE 2018.

Sincerely,
Jeffrey T. Olimpo
Program Committee Chair
Conference Planning Committee

ASMCUE Steering Committee

Jeffrey T. Olimpo, Chair
The University of Texas at El Paso, El Paso, TX

Jaclyn Madden, Vice-Chair
Harford Community College, Bel Air, MD

Linnea Fletcher, Biotech Planning Representative
Austin Community College District, Austin, TX

Bryan Dewsbury, Committee Member-at-Large
The University of Rhode Island, South Kingston, RI

Poster Abstract Review Committee

Brian Gentry, Chair
Drake University, Des Moines, IA

Amy Morris
Hastings College, Hastings, NE

Mark Randa
Cumberland County College, Vineland, NJ

Veronica Segarra
High Point University, High Point, NC

Kerri Younkin
Towson University, Baltimore, MD

Microbrew Review Committee

Ned Barden, Chair
Massachusetts College of Pharmacy and Health Sciences, Boston, MA

Jerry Kavouras
Lewis University, Romeoville, IL

Michael Hanophy
St. Joseph’s College, Brooklyn, NY

Suzanne Long
Monroe Community College, Rochester, NY

ASM Education Committee Representatives

Mary Sánchez Lanier, Chair, Washington State University, Pullman, WA

Amy Siegesmund, Chair, ASM Committee on Undergraduate Education, Pacific Lutheran University, Tacoma, WA

Susan Merkel, Past Chair, ASM Committee on Undergraduate Education, Cornell University, Ithaca, NY

ASM Staff

Amy Chang
Director, Education Department

Irene Hulede
Senior Manager, Education Department

Claire Wilson
Education Specialist

Khoa Le
Meeting Planner, Meetings Department

Tiffany Fonseca
Education Specialist

Bethany Adamec
Production Editor, *Journal of Microbiology & Biology Education (JMBE)*

WWW.ASMCUE.ORG
<table>
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<tr>
<th>Exhibitor</th>
<th>Booth</th>
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<td>American Society for Microbiology (Press)</td>
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<tr>
<td>Biolog, Inc.</td>
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<td>Bio-Rad Laboratories</td>
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<td>LI-COR Biosciences</td>
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<td>McGraw-Hill Education</td>
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<td>MiniOne Systems</td>
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<td>miniPCR</td>
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<td>Morton Publishing Company</td>
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<td>Pearson</td>
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<td>Pro-Lab Diagnostics</td>
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<td>Squarecap</td>
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<tr>
<td>Wiley</td>
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<tr>
<td>W.W. Norton and Company, Inc.</td>
<td>22</td>
</tr>
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</table>
Travel Awardees

2018 Travel Awardees

David S. Askew, University of Cincinnati, Cincinnati, OH

Brad C. Bennett, Samford University, Birmingham, AL

Erica L. Foote, Passaic County Community College, Paterson, NJ

Stefanie L. Iverson Cabral, University of Washington Bothell, Bothell, WA

Caitlin J. Light, Binghamton University (The State University of New York), Binghamton, NY

Desiree J. Meyers, Wayne County Community College District, Taylor, MI

Samiksha A. Raut, The University of Alabama at Birmingham, Birmingham, AL

Rebekah T. Taylor, Frostburg State University, Frostburg, MD

2018 Textbook Travel Award Winner

Melissa V. Ramirez, North Carolina State University, Raleigh, NC

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; Barry 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.
General Information

All conference activities will be held at the Renaissance Austin Hotel.

Renaissance Austin Hotel
9721 Arboretum Boulevard
Austin, Texas 78759

Registration
Registration is located in the Grand Ballroom Foyer at the Renaissance Austin Hotel. Collect your name badge and program materials at the registration desk. A name badge is required for entry into all sessions and meals.

Registration Hours:
Thursday, July 26
2:00 p.m. – 8:00 p.m.

Friday, July 27
7:00 a.m. – 8:00 p.m.

Saturday, July 28
7:00 a.m. – 8:00 p.m.

Guidebook App
The most up-to-date program and complete abstracts are available on the Guidebook app. Download the Guidebook app from your app store. Then search for ‘ASMCUE 2018’ and download the Guidebook app.

ASM Events Code of Conduct
The American Society for Microbiology (ASM) is the main forum for microbial sciences that considers and debates scientific issues in an orderly, respectful, and fair manner. 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. For the full ASM Events Code of Conduct policy, please visit https://www.asm.org/index.php/about-asmcue/asm-events-code-of-conduct.

Share Photos
ASMCUE encourages attendees to share photos of their conference experience by contributing to the shared photo album on the Guidebook app. To protect the integrity of the science presented, please get permission from the author before taking a photo or video of projected images from any session, slide, or poster.

Wifi Access
ASM is pleased to provide free wireless internet service for ASMCUE at the Renaissance Austin Hotel.

Network ID: ASM
Password: ASMCUE18

Don’t Miss Networking Events at ASMCUE
View the Guidebook app for a full list of the networking events at ASMCUE.
**Poster Presentations**

Poster presentations will be held in Rio Grande A. 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 2:30 p.m. – 6:30 p.m.

Poster Session A
Saturday 9:45 a.m. – 10:45 a.m.

Poster Session B
Saturday 1:30 p.m. – 2:30 p.m.

**Take-Down**
Saturday 2:30 p.m. – 3:00 p.m.

**“Spirit Days”**

*Friday: College and University Spirit Day*
– Represent your institution by sporting your school jacket, t-shirts, ties and polos. Show us your school spirit!

*Saturday: 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 Inst ........... RED
International Institution............... PURPLE

**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.
# Schedule at a Glance

## Thursday, July 26

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>10:00 a.m. – 3:00 p.m.</td>
<td>Pre-Conference Workshops - Registration Required</td>
</tr>
<tr>
<td>2:00 p.m. – 8:00 p.m.</td>
<td>Registration Open</td>
</tr>
<tr>
<td>4:00 p.m. – 5:30 p.m.</td>
<td>ASM Welcome and Carski Lecture - Mark O. Martin</td>
</tr>
<tr>
<td>5:45 p.m. – 6:45 p.m.</td>
<td>Opening Dinner</td>
</tr>
<tr>
<td>7:00 p.m. – 8:30 p.m.</td>
<td>Mini-Workshops</td>
</tr>
<tr>
<td>8:30 p.m. – 9:30 p.m.</td>
<td>Opening Reception Sponsored by ASM</td>
</tr>
</tbody>
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## Friday, July 27

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 a.m. – 8:00 p.m.</td>
<td>Registration Open</td>
</tr>
<tr>
<td>7:00 a.m. – 8:00 a.m.</td>
<td>Continental Breakfast – Tables by Geographic Location – See Guidebook for details</td>
</tr>
<tr>
<td>8:00 a.m. – 8:45 a.m.</td>
<td>Concurrent Education Sessions</td>
</tr>
<tr>
<td>8:55 a.m. – 9:40 a.m.</td>
<td>Concurrent Education Sessions</td>
</tr>
<tr>
<td>9:40 a.m. – 10:00 a.m.</td>
<td>Break</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>Plenary – Carl E. Wieman</td>
</tr>
<tr>
<td>12:00 p.m. – 1:30 p.m.</td>
<td>Lunch and Dissemination Station Resource Fair</td>
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<tr>
<td>12:30 p.m. – 2:00 p.m.</td>
<td><em>Journal of Microbiology &amp; Biology Education (JMBE)</em> Office Hours</td>
</tr>
<tr>
<td>1:30 p.m. – 2:30 p.m.</td>
<td>Science Updates</td>
</tr>
<tr>
<td>2:30 p.m. – 6:30 p.m.</td>
<td>Poster Set Up (Sessions A &amp; B)</td>
</tr>
<tr>
<td>2:40 p.m. – 3:25 p.m.</td>
<td>Concurrent Education Sessions</td>
</tr>
<tr>
<td>3:35 p.m. – 4:20 p.m.</td>
<td>Concurrent Education Sessions</td>
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<tr>
<td>4:30 p.m. – 5:15 p.m.</td>
<td>Concurrent Education Sessions</td>
</tr>
<tr>
<td>3:00 p.m. – 6:00 p.m.</td>
<td>Exhibitor Set Up</td>
</tr>
<tr>
<td>5:30 p.m. – 6:30 p.m.</td>
<td>Science Updates</td>
</tr>
<tr>
<td>6:30 p.m. – 8:30 p.m.</td>
<td>Exhibit Hall Opening &amp; Reception</td>
</tr>
<tr>
<td>8:30 p.m. – 9:30 p.m.</td>
<td>LuxArt Painting</td>
</tr>
</tbody>
</table>
Saturday, July 28

7:00 a.m. – 8:00 p.m.  Registration Open
7:00 a.m. – 8:00 a.m.  Continental Breakfast Sponsored by Pearson—By Topic – See the Guidebook app for list of topics
7:45 a.m. - 8:15 a.m.  How to volunteer for JMBE
8:30 a.m. – 9:30 a.m.  Plenary – Hong Ma
9:30 a.m. – 12:00 p.m.  Exhibit Hall Open
9:30 a.m. – 12:00 p.m.  Product Corners, Author Corners, Focus Groups
9:45 a.m. – 10:45 a.m.  Poster Session A
10:45 a.m. – 11:00 a.m.  Coffee Break – Sponsored by Pearson
11:00 a.m. – 12:00 p.m.  Microbrew Session A-C
12:00 p.m. – 1:30 p.m.  Lunch – Exhibit Hall Closed
12:30 p.m. – 2:00 p.m.  JMBE Office Hours
1:30 p.m. – 3:30 p.m.  Exhibit Hall Open
1:30 p.m. – 3:30 p.m.  Product Corners, Author Corners, Focus Groups
1:30 p.m. – 2:30 p.m.  Poster Session B
2:45 p.m. – 3:45 p.m.  Microbrew Session D-F
4:00 p.m. – 5:00 p.m.  Microbrew Session G-I
5:15 p.m. – 7:00 p.m.  HHMI Night at the Movies
7:00 p.m. – 7:30 p.m.  Lux Art Viewing
7:00 p.m. – 9:00 p.m.  Affinity Dinners – Sign Ups Required (Registration Desk)

Sunday, July 29

8:00 a.m. – 9:00 a.m.  Breakfast on your own
9:00 a.m. – 11:00 a.m.  Plenary followed by workshop - Spencer Benson
11:15 a.m. – 11:30 a.m.  Closing Remarks – Jeffery T. Olimpo and Jaclyn Madden
Thursday, July 26

10:00 a.m. – 3:00 p.m.
Pre-Conference Workshops (4 session options) – Additional registration required, lunch on your own

Session 1 | Pecos
Case Studies, Beyond the Basics: Development, Implementation, Assessment, and Publishing
Melissa Zwick, Stockton University, Galloway, NJ
Ally Hunter, University of Massachusetts Amherst, Amherst, MA
Kevin Bonney, New York University, New York, NY

Session 2 | Sabine
Design and Implementation of Your Own CURE in Synthetic Biology
Nathan S. Reyna, Ouachita Baptist University, Arkadelphia, AR
Bridgette Kirkpatrick, Collin College, McKinney, TX

Session 3 | Wedgwood Ballroom
Developing Quantitative Skills in Your Courses Using Howard Hughes Medical Institute (HHMI) BioInteractive Resources
Rebecca Orr, Collin College, Plano, TX
Holly Basta, Rocky Mountain College, Billings, MT
Melissa Csikari, HHMI, Chevy Chase, MD

Session 4 | Trinity A
NSF Proposal Writing for the ASMCUE Community
Celeste Carter, National Science Foundation, Alexandria, VA

2:00 p.m. – 8:00 p.m.
Registration Open
Grand Ballroom Foyer

4:00 p.m. - 4:30 p.m.
ASM Welcome, Jeffery T. Olimpo
Grand Ballroom A

4:30 p.m. - 5:30 p.m.
Carski Lecture, Mark O. Martin
Grand Ballroom A

5:45 p.m. – 6:45 p.m.
Opening Dinner
Grand Ballroom B
7:00 p.m. – 8:30 p.m.
Mini Workshops (5 session options)

Session 1 | Wedgwood Ballroom

**An Introduction to Tenure for Microbiologists**

Phoebe Lostroh, Colorado College, Colorado Springs, CO

Session 2 | Trinity A

**The Essentials of Education Research: From Development to Publication**

Heather Seitz, Johnson County Community College, Overland Park, KS
Jeffrey T. Olimpo, The University of Texas at El Paso, El Paso, TX
Samantha L. Elliott, St. Mary’s College of Maryland, St. Mary’s City, MD
Andrea Pratt Rediske, Valencia College, Orlando, FL

Session 3 | Trinity B

**Implementation and Evaluation of Experimental Design Concepts in Course-based Undergraduate Research Experiences (CUREs) in the Biological Sciences**

Jeffrey T. Olimpo, The University of Texas at El Paso, El Paso, TX
Melissa Rowland-Goldsmith, Chapman University, Orange, CA
Martina Rosenberg, University of New Mexico, Albuquerque, NM

Session 4 | Sabine

**Public Science Outreach: A Catalyst for Science**

Catherine Vrentas, Iowa State University, Ames, IA
Julia Massimelli, University of California-Irvine, Irvine, CA
Rebekah Taylor, Frostburg State University, Frostburg, MD

Session 5 | Pecos

**Setting Goals for Teaching and Learning: A Primer for Course Design**

Sue Merkel, Cornell University, Ithaca, NY

8:30 p.m. – 9:30 p.m.
Opening Reception
Grand Ballroom Foyer

Friday, July 27

7:00 a.m. – 8:00 p.m.
Registration Open
Grand Ballroom Foyer

7:00 a.m. – 8:00 a.m.
Continental Networking Breakfast - By Geographic Location
Grand Ballroom B

8:00 a.m. – 8:45 a.m.
Concurrent Education Sessions (5 session options)

Session 1 | Wedgwood Ballroom

**Beginning Biotech Labs on a Limited Budget Especially at the Community College**

Bridgette Kirkpatrick, Collin College, Plano, TX
Brian Shmaefsky, Lone Star College, Kingwood, TX
Kristen Wolslegel, City College, San Francisco, CA

Session 2 | Trinity A

**Active Learning Across an Entire Microbiology Course: A View from the Trenches**

Lee E. Hughes, University of North Texas, Denton, TX
Session 3 | Trinity B

Concept Mapping for Assessing Foundational Biology Knowledge

Amy G. Briggs, Beloit College, Beloit, WI

Session 4 | Sabine

Public Engagement Practices for Scientists (PEPS) Project: Hands on Training for Scientists to Engage and Educate Underserved Communities on Science

Nina M. Martin, Johns Hopkins School of Public Health, Baltimore, MD

Session 5 | Pecos

Increasing Student Engagement by Incorporating E-portfolios – Best Practices and Lessons Learned

Marsha Gaston, University of Cincinnati Blue Ash College, Blue Ash, OH

8:55 a.m. – 9:40 a.m.
Concurrent Education Sessions (4 session options)

Session 1 | Wedgwood Ballroom

How to Improve Quantitative Writing in STEM Students Without Teaching Writing

Tracy Ruscetti, Santa Clara University, Santa Clara, CA
Christelle Sabatier, Santa Clara University, Santa Clara, CA

Session 2 | Trinity A

Building a Biotechnology Program that is Sustainable and Responsive to Industry and Student Needs

Linnea Fletcher, Austin Community College, Austin, TX

Session 3 | Trinity B

Exploring the Undiscovered Profession of Medical Laboratory Science: Awesome Options for Students Interested in Clinical Microbiology

Lisa Cremeans, University of North Carolina-Chapel Hill, Chapel Hill, NC

Session 4 | Sabine

Hands-on Bioinformatics Exercises for the Analysis of Complex Microbiomes in the Classroom

Kostas Konstantinidis, Georgia Institute of Technology, Atlanta, GA
James Cole, Michigan State University, East Lansing, MI
James Tiedje, Michigan State University, East Lansing, MI

9:40 a.m. – 10:00 a.m.
Break

10:00 a.m. – 10:45 a.m.
Concurrent Education Sessions (5 session options)

Session 1 | Wedgwood Ballroom

Drug Discovery and Zika Virus

Sandra Porter, Digital World Biology LLC, Shoreline & Austin Community College, Austin, TX

Session 2 | Trinity A

Supporting Non-Tenure Track Faculty Dedicated to Undergraduate Research Mentorship

Patrick J. Killion, University of Maryland, College Park, MD
Session 3 | Trinity B

Microbiology Detectives: Gathering Evidence to Solve Mysteries

Debra Myers, Penn State Hershey Medical Center, Hershey, PA

Session 4 | Sabine

Adopt a Bacterium: A Novel Approach to Teaching Microbiology

Natalia Pasternak Taschner, University of Sao Paulo, Sao Paulo-Brazil
Regina Albanese, University of Sao Caetano do Sul, Sao Caetano do Sul-Brazil
Flavio Krzyzanowsky, Instituto Federal de Ciencia, Educação e Tecnologia de Sao Paulo, Sao Paulo-Brazil
Alexandre La Luna, Instituto Federal de Ciencia, Educação e Tecnologia de Sao Paulo, Sao Paulo-Brazil
Rita Café Ferreira, University of Sao Paulo, Sao Paulo-Brazil

Session 5 | Pecos

Keeping Microbes in the Laboratory: Best Practices in Laboratory Biosafety

Jeffrey J. Byrd, St. Mary’s College of Maryland, St. Mary’s City, MD

11:00 a.m. – 12:00 p.m.
Plenary Session
Grand Ballroom A

A New Way to Characterize and Evaluate Your Teaching

Carl E. Wieman, Stanford University and Carl Wieman Science Education Initiative, Stanford, CA

12:00 p.m. – 1:30 p.m.
Networking Lunch
Grand Ballroom B

12:00 p.m. – 1:30 p.m.
Dissemination Station Resource Fair
Arbor

12:30 p.m. – 2:00 p.m.
JMBE Office Hours – By Appointment Only
(limited onsite signup available)
Frio

1:30 p.m. – 2:30 p.m.
Scientific Update Sessions (3 session options)

Session 1 | Wedgwood Ballroom

The Art of Making Vaccines

Alfredo G. Torres, University of Texas Medical Branch

Featured Concurrent Education Sessions Suggested for Biotechnology Educators

8:00 a.m. – 8:45 a.m. | Wedgwood Ballroom
Beginning Biotech Labs On a Limited Budget Especially at the Community College

8:55 a.m. – 9:40 a.m. | Pecos
Building a Biotechnology Program that is Sustainable and Responsive to Industry and Student Needs

10:00 a.m. – 10:45 a.m. | Wedgwood Ballroom
Drug Discovery and Zika Virus

2:40 p.m. – 3:25 p.m. | Trinity A
Staying Current in the Field — What Science and Skills Should Learn and Teach

3:35 p.m. – 4:20 p.m. | Trinity A
Making Connections with Industry and Finding Mentors for Students
### Session 2 | Trinity B

**Engineering an Expanded Chemical Palette in Cells**

*Hal S. Alper*, The University of Texas at Austin

### Session 3 | Sabine

**Where Bacterial Physiology Meets Virulence - The Anthrax Model**

*Theresa M. Koehler*, McGovern Medical School, University of Texas Health Science Center - Houston

### 2:40 p.m. – 3:25 p.m.

**Concurrent Education Sessions (4 session options)**

#### Session 1 | Wedgwood Ballroom

**Telling the Same Story Differently....Engaging Non-Science Majors Taking a Laboratory-based Science Class**

*Brian M. Forster*, Saint Joseph’s University, Philadelphia, PA

#### Session 2 | Trinity A

**Staying Current in the Field --What Science and Skills Should Learn and Teach**

*Sandra Porter*, Digital World Biology LLC, Shoreline & Austin Community College, Austin, TX

### Session 3 | Trinity B

**The What, When, Where and How: Becoming a Clinical Microbiologist**

*Lisa Cremeans*, University of North Carolina-Chapel Hill, Chapel Hill, NC  
*Debra Myers*, Penn State Hershey Medical Center, Harrisburg, PA

### Session 4 | Sabine

**Your Students + Your Goals + Your Ideas = Your CURE**

*Brad Goodner*, Hiram College, Hiram, OH  
*Aaron Best*, Hope College, Holland, MI

### 3:35 p.m. – 4:20 p.m.

**Concurrent Education Sessions (5 session options)**

#### Session 1 | Wedgwood Ballroom

**Using the Biointeractive “Gutless Wonders” Video to Engage Students in Hypothesis Generation and Experimental Design**

*Dave Westenberg*, Missouri S&T, Rolla, MO

#### Session 2 | Trinity A

**Making Connections with Industry and Finding Mentors for Students**

*James F. Guenther*, Delgado Community College, New Orleans, LA
Session 3 | Trinity B

Developing Student Metacognitive Skills with In-Class Interventions

Jessica Santangelo, Hofstra University, Hempstead, NY

Session 4 | Sabine

Universal Design for Learning: Pathways to Success for all Students

Elizabeth E. Mosser, Harford Community College, Bel Air, MD

Session 5 | Pecos

Everything is Everywhere, and the Student Extracts: Course-based Microbiome Research

Jessica Lee Joyner, The City College of New York, Brooklyn College, Brooklyn, NY
Theodore R. Muth, The City College of New York, Brooklyn College, Brooklyn, NY
Avrom J. Caplan, The City College of New York, New York, NY

4:30 p.m. – 5:15 p.m.
Concurrent Education Sessions (5 session options)

Session 1 | Wedgwood Ballroom

Using the Central Dogma as a Model to Explore Modern Technologies

Jacqueline Washington, Nyack College, Nyack, NY

Session 2 | Trinity A

New Flipped Microbial Metabolism Activity Enhances Student Learning and Confidence

Jennifer McLean, Colorado State University, Fort Collins, CO
Erica Suchman, Colorado State University, Fort Collins, CO

Session 3 | Trinity B

Microbiology in Nursing and Allied Health (MINAH): Curriculum Guidelines, Toolkit, and Next Steps

Lourdes Norman-McKay, Florida State College, Jacksonville, FL
Andrea Rediske, Valencia College, Orlando, FL
Brian Forster, St. Joseph’s University, Philadelphia, PA

Session 4 | Sabine

The Incubation Station: Making Connections for Discipline-based Educational Research (DBER) Projects

Nancy Boury, Iowa State University, Ames, IA

Session 5 | Pecos


Carol A. Bascom-Slack, Tufts University School of Medicine, Boston, MA
Jennifer R. Larson, Capital University, Columbus, OH
Elizabeth A. Genné-Bacon, Tufts University School of Medicine, Boston, MA
Bruce Bryan, miniPCR, Cambridge, MA

5:30 p.m. – 6:30 p.m.
Scientific Update Sessions (2 session options)

Session 1 | Wedgwood

Using Biologics to Control Microbial Infections

Bryan W. Davies, University of Texas at Austin

Session 2 | Trinity A

Mitosis Meets the Mitochondria

Laura A. Diaz-Martinez, The University of Texas at El Paso
6:30 p.m. – 8:30 p.m.
Exhibits Open & Reception
Rio Grande A

8:30 p.m. – 9:30 p.m.
LuxArt Painting | Grand Ballroom B
Mark O. Martin, Anne Estes, and Jennifer Quinn will lead interested attendees through the process of creating artistic masterpieces using cultures of bioluminescent bacteria. Please note supplies are limited.

Saturday, July 28

7:00 a.m. – 8:00 p.m.
Registration Open
Grand Ballroom Foyer

7:00 a.m. – 8:00 a.m.
Continental Breakfast Sponsored by Pearson – By Topical Area, see Guidebook app
Grand Ballroom B

7:45 a.m. – 8:15 a.m.
How to Volunteer for the Journal of Microbiology & Biology Education (JMBE)
Frio

8:30 a.m. – 9:30 a.m.
Plenary Session
Grand Ballroom A

Cell and Gene Therapy in Reproductive Medicine
Hong Ma, Oregon Health & Science University, Portland, OR

9:00 a.m. – 12:00 p.m.
Author Corners, Product Corners, Focus Groups
Rio Grande A

Focus Group
9:00 a.m. – 10:00 a.m.
Pearson (by invitation only)

Product Corner
9:45 a.m. – 10:45 a.m.
MiniOne PCR
PCR as a Standard Genetic Analysis Tool in Today’s Undergraduate Courses
Presented by: Richard Chan
Rio Grande A (Section 1)

Author Corner
10:00 a.m. – 10:30 a.m.
ASM Press
Challenges of the Unseen World
Presented by: Stacie Brown
Rio Grande A (Section 2)

Author Corner
10:20 a.m. – 10:50 a.m.
Molecular and Cellular Biology of Viruses
Presented by: C. Phoebe Lostroh
Rio Grande A (Section 2)

Author Corner
10:55 a.m. – 11:25 a.m.
McGraw Hill
Adaptive Learning in the Digital Course
Presented by: Dorothy H. Wood
Rio Grande A (Section 2)

Author Corner
11:25 a.m. – 12:00 p.m.
Pearson
Thinking Critically from Day ONE of Class
Presented by: Lourdes Norman McKay
Rio Grande A (Section 1)
9:45 a.m. – 10:45 a.m.
Poster Session A
Rio Grande A

A-1: Learning Strategies and Problem-Solving Performance in Microbiology
Josephine Ebomoyi, Northern Illinois University, DeKalb, IL

A-3: Assessment of an Observational Study on Student Handwashing Behavior
Lita Yu, Ursuline College, Pepper Pike, OH

A-5: Active Engagement, Not Exposure Time, Accounts for Gains in Understanding in a Flipped Introductory Biology Course
Mary Bass, University of Illinois at Urbana-Champaign, Champaign-Urbana, IL
Jennifer Cromley, University of Illinois at Urbana-Champaign, Champaign-Urbana, IL
Benjamin Clegg, University of Illinois at Urbana-Champaign, Champaign-Urbana, IL

A-7: The Role of Team-based Learning Environments in Closing Performance Gaps in a Large Introductory Biology Course
Benjamin Clegg, University of Illinois at Urbana-Champaign, Champaign-Urbana, IL

A-9: The Implementation and Assessment of a Learning Assistant Program in a High-Enrollment Microbiology Lecture Course
Kimberly Gomez, University of California – Davis, Davis, CA
Miriam Martin, University of California – Davis, Davis, CA

A-11: Ready for Biology? Predicting Achievement in an Introductory College Biology Course
Anupama Shanmuganathan, Washington & Jefferson College, Washington, PA

A-13: Implementation of an Entrepreneurial Minded Learning Activity in General Biology Classes
Michelle Ammerman, Kettering University, Flint, MI
Cheryl Samaniego, Kettering University, Flint, MI

A-15: Using Repetitive Summative Assessment to Increase Learning of Basic Calculations in an Introductory Biology Lab
John H. Horne, Jr., University of New Orleans, New Orleans, LA
Henry W. Woolley, University of New Orleans, New Orleans, LA
Jerome J. Howard, University of New Orleans, New Orleans, LA
Wendy M. Schluchter, University of New Orleans, New Orleans, LA
A-17: Horizontal Infusion of Arctic/Polar Science Research into a Quantitative Methods in Ecology Course Results in Enhancement of Students’ Statistical Reasoning Abilities, Statistics Attitudes, and Scientific Process Skills

Jeffrey T. Olimpo, The University of Texas at El Paso, El Paso, TX
Vanessa L. Lougheed, The University of Texas at El Paso, El Paso, TX
Craig E. Tweedie, The University of Texas at El Paso, El Paso, TX

A-19: Survey of the Endemic Fungi of the Great Basin: Incorporating Original Research into an Undergraduate Microbiology Laboratory Experience

Ruth Gault, University of Nevada, Reno, Reno, NV

A-21: Assessment of a CURE-based Module for Protein Interactions

Stefanie H. Chen, North Carolina State University, Raleigh, NC
Carlos C. Goller, North Carolina State University, Raleigh, NC

A-23: Bridging the Gaps: an Innovative and Integrated Undergraduate Fermentation Science Course

Paul M. Duffin, Transylvania University, Lexington, KY
Kyle Schnitzenbaumer, Transylvania University, Lexington, KY

A-25: PUMA: Pipeline for Undergraduate Microbiome Analysis

Jordan Moberg Parker, University of California, Los Angeles, Los Angeles, CA
Keith Mitchell, University of California, Los Angeles, Los Angeles, CA
Christopher Dao, University of California, Los Angeles, Los Angeles, CA
Jiem Ronas, University of California, Los Angeles, Los Angeles, CA
Amanda Freise, University of California, Los Angeles, Los Angeles, CA

A-27: The Student-Centered Classroom: Probiotics and the Human Microbiome

Jennifer Lyles, Francis Marion University, Florence, SC
Monika Oli, University of Florida, Gainesville, FL

A-29: Agar Art as a Canvas for Discovery in the Microbiology Laboratory Classroom

Sarah J. Adkins, University of Alabama at Birmingham, Birmingham, AL
Rachel K. Rock, University of Alabama at Birmingham, Birmingham, AL
Jeff Morris, University of Alabama at Birmingham, Birmingham, AL

A-31: Art in the Microbiology Classroom: a Useful Tool to Motivate Students and Teach Complex Processes

Patricia Goodman-Mamula, University of Minnesota, St. Paul, MN
Lisa Bofencamp, University of Minnesota, St. Paul, MN
Greta Henry, University of Minnesota, St. Paul, MN
Dawn Foster-Hartnett, University of Minnesota, St. Paul, MN

A-33: Teaching Scientific Communication in the 21st Century: Using Website Design as a Classroom Tool

Dawn Foster-Hartnett, University of Minnesota, St. Paul, MN
Patricia Goodman-Mamula, University of Minnesota, St. Paul, MN
Timothy Johnson, University of Minnesota, St. Paul, MN
Daniela Vidovic, University of Minnesota, St. Paul, MN
Greta Henry, University of Minnesota, St. Paul, MN

A-35: Bacterial Survivor: An Interactive Game That Combats Misconceptions About Antibiotic Resistance

Brinda Govindan, San Francisco State University, San Francisco, CA
A-37: Making Evolution Stick: Evaluating the Use of Sticky Notes to Teach Evolution
Sarah C. Fankhauser, Oxford College of Emory University, Oxford, GA
Kathleen Grogan, Pennsylvania State University, State College, PA
Teresa Lee, Emory University, Atlanta, GA

Samiksha Raut, The University of Alabama at Birmingham, Birmingham, AL
Daniel Mendoza, The University of Alabama at Birmingham, Birmingham, AL
Sarah Adkins, The University of Alabama at Birmingham, Birmingham, AL
J. Jeffrey Morris, The University of Alabama at Birmingham, Birmingham, AL

A-41: Environmental Sampling: An Approach to Integrate Education and Research
Rupa Iyer, University of Houston, Houston, TX

10:45 – 11:00 a.m.
Coffee Break – Sponsored by Pearson
Rio Grande A

11:00 a.m. – 11:15 a.m.
Microbrew Session A (7 session options)

Microbrew Session 1A | Pecos
Six Microbes That Changed the World: Developing 21st Century Skills Through the Integration of Biology and History
Jean Huang, Olin College, Needham, MA
Robert Martello, Olin College, Needham, MA

Microbrew Session 2A | Sabine
Beyond Barcoding: Metabarcoding for Student Independent Research
Bruce Nash, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY
Cornel Ghiban, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY

Microbrew Session 3A | San Antonio
Improving Group Work by Developing a Climate of Psychological Safety Using the Check-in and Warm-Up
Laurieann Klockow, Marquette University, Milwaukee, WI

Microbrew Session 4A | San Marcos
Bacteriophage Discovery Science for Education in Genomics, Molecular Biology, and Wet Bench Microbiology
Jolene Ramsey, Texas A&M University, College Station, TX
Jesse Cahill, Texas A&M University, College Station, TX
Mei Liu, Texas A&M University, College Station, TX
Cory Maughmer, Texas A&M University, College Station, TX
Heather Newkirk, Texas A&M University, College Station, TX
Chandler O’Leary, Texas A&M University, College Station, TX
James Hu, Texas A&M University, College Station, TX
Ryland Young, Texas A&M University, College Station, TX
Jason Gill, Texas A&M University, College Station, TX

Microbrew Session 5A | San Saba
Microbes in the Media: Is the Science Portrayed Accurately to the Public?
Anne Estes, Towson University, Baltimore, MD

Microbrew Session 6A | Trinity A
Coaching Freshmen to Interpret Scientific Papers and Communicate Research to the Public
Ruth Buskirk, University of Texas at Austin, Austin, TX
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<thead>
<tr>
<th>Session</th>
<th>Location</th>
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<tbody>
<tr>
<td>7A</td>
<td>Trinity B</td>
<td><strong>Biosafety in the CURE Age</strong>&lt;br&gt;Jonathan N. Lawson, Collin College, Plano, TX&lt;br&gt;Bridgette Kirkpatrick, Collin College, Plano, TX&lt;br&gt;Donna M. Cain, Collin College, Plano, TX</td>
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<td>5B</td>
<td>San Saba</td>
<td><strong>Sustained Teaching Mentoring Works and Benefits Mentors as Well as those Mentored. An Update on the Promoting Active Learning and Mentoring (PALM) Network</strong>&lt;br&gt;Samiksha Raut, University of Alabama at Birmingham, Birmingham, AL&lt;br&gt;Sara Brownell, Arizona State University, Tempe, AZ&lt;br&gt;Sue Wick, University of Minnesota-Twin Cities, St. Paul, MN&lt;br&gt;Amy Prunuske, Medical College of Wisconsin, Milwaukee, WI&lt;br&gt;Michael Wolyniak, Hampden Sydney College, Hampden Sydney, VA&lt;br&gt;Mark Peifer, University of North Carolina Chapel Hill, Chapel Hill, NC</td>
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<tr>
<td>1B</td>
<td>Pecos</td>
<td><strong>Using Game-Design Strategies to Develop Higher Order Skills with Vocabulary: Microbiology Code Names</strong>&lt;br&gt;Nancy Boury, Iowa State University, Ames, IA</td>
</tr>
<tr>
<td>2B</td>
<td>Sabine</td>
<td><strong>Enrichment of the Microbiology Laboratory Culture</strong>&lt;br&gt;Thiru Vanniasinkam, Charles Sturt University, Wagga Wagga, New South Wales, Australia&lt;br&gt;Andrea Crampton, Charles Sturt University, Wagga Wagga, New South Wales, Australia&lt;br&gt;John Harper, Charles Sturt University, Wagga Wagga, New South Wales, Australia&lt;br&gt;George John, Charles Sturt University, Wagga Wagga, New South Wales, Australia</td>
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<td>3B</td>
<td>San Antonio</td>
<td><strong>Celebrating the Central Dogma's 60th: A Classroom Activity to Address a Common Misconception About Information Flow Held by Undergraduate Instructors and Students</strong>&lt;br&gt;Alita Burmeister, Yale University, New Haven, CT&lt;br&gt;Michael Blazanin, Yale University, New Haven, CT</td>
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<td>4B</td>
<td>San Marcos</td>
<td><strong>Hands-on Puzzles to Improve Students Understanding of Signaling Pathways</strong>&lt;br&gt;Elizabeth Danko, University of North Carolina-Chapel Hill, Chapel Hill, NC&lt;br&gt;Kelsie Bernot, North Carolina Agricultural and Technical State University, Greensboro, NC</td>
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<td>6B</td>
<td>Trinity A</td>
<td><strong>Encouraging Creativity in Lab Courses by Rethinking the Traditional Lab Report</strong>&lt;br&gt;Claire Gordy, North Carolina State University, Raleigh, NC&lt;br&gt;Joy Little, North Carolina State University, Raleigh, NC</td>
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<tr>
<td>7B</td>
<td>Trinity B</td>
<td><strong>Experiential Experimental Design</strong>&lt;br&gt;Shazia Ahmed, Texas Woman's University, Denton, TX</td>
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<tr>
<td>1C</td>
<td>Pecos</td>
<td><strong>The List: An Active Learning Assignment to Increase Student Comprehension of Microbial Diversity</strong>&lt;br&gt;John Scott Wilbur, University of Arizona, Tuscon, AZ</td>
</tr>
</tbody>
</table>
Microbrew Session 2C | Sabine

How to Maximize STEM Learning in Microbiology Laboratory: Lesson in Bacterial Enumeration

Joni Ylostalo, University of Mary Hardin-Baylor, Belton, TX

Microbrew Session 3C | San Antonio

Using the Microbiology Concept Inventory to Assess and Improve Learning in a Large Microbiology Course

M. Julia Massimelli, University of California Irvine, Irvine, CA

Microbrew Session 4C | San Marcos

Communication Ambassadors - An Australian Outreach Initiative for Early Career Scientists

Jack T. H. Wang, The University of Queensland, Brisbane, Queensland, Australia, The Australian Society for Microbiology, Melbourne, Victoria, Australia
Cheryl J. Power, The University of Melbourne at the Peter Doherty Institute for Infection and Immunity
Charlene M. Kahler, The University of Western Australia, Perth, Western Australia, Australia, The Australian Society for Microbiology, Melbourne, Victoria, Australia
Dena Lyras, Monash University, Melbourne, Victoria, Australia, The Australian Society for Microbiology, Melbourne, Victoria, Australia
Paul R. Young, The University of Queensland, Brisbane, Queensland, Australia, The Australian Society for Microbiology, Melbourne, Victoria, Australia
Jonathan Iredell, The University of Sydney, Westmead Hospital, Westmead, New South Wales, Australia, The Australian Society for Microbiology, Melbourne, Victoria, Australia
Roy Robins-Browne, The University of Melbourne at the Peter Doherty Institute for Infection and Immunity, Melbourne, Victoria, Australia, The Australian Society for Microbiology, Melbourne, Victoria, Australia

Microbrew Session 5C | Trinity A

Enhanced Peer Learning in the Laboratory Using Oral Presentations

Margie Paz, University of Georgia, Griffin, GA

Microbrew Session 6C | Trinity B

A Genetics Laboratory Activity to Determine Sex Using a PCR-based Approach

Nickie Cauthen, LaGrange College, LaGrange, GA
Melinda Pomeroy-Black, LaGrange College, LaGrange, GA

12:00 p.m. – 1:30 p.m.
Lunch
Grand Ballroom B

12:30 p.m. – 2:00 p.m.
JMBE Office Hours – By Appointment Only
(limited onsite signup available)
Frio

1:30 p.m. – 3:30 p.m.
Exhibit Hall Open
Rio Grande A

1:30 p.m. – 3:30 p.m.
Author Corners, Product Corners, Focus Groups
Rio Grande A

Author Corner
1:45 p.m. – 2:15 p.m.
McGraw Hill
Use Digital to Enhance Active Learning in the Classroom
Presented by: Heidi Smith
Rio Grande A (Section 1)

Product Corner
1:45 p.m. – 2:15 p.m.
Bio-Rad
Resources for undergraduate research
Presented by: Ingrid Miller
Rio Grande A (Section 2)
Product Corner
2:20 p.m. – 2:50 p.m.
McGraw Hill
High Impact Practices in the Microbiology Laboratory
Presented by: Barry Chess
Rio Grande A (Section 1)

Product Corner
2:55 p.m. – 3:25 p.m.
LabArchives, LLC
Digital Lab Notebooks & Manuals in Modern Lab Instruction
Presented by: Richard Romero
Rio Grande A (Section 2)

Author Corner
2:55 p.m. – 3:25 p.m.
McGraw Hill
Student Literacy
Presented by: Kelly Murphy Cowan
Rio Grande A (Section 1)

1:30 p.m. – 2:30 p.m.
Poster Session B
Rio Grande A

B-2: Study Habits That Set the Bar: Identifying Effective Study Methods of High Performing Students
Leilani Jones, University of California – Davis, Davis, CA
Kavi Tan, University of California – Davis, Davis, CA
Tiffany Johnson, University of California – Davis, Davis, CA
Miriam Martin, University of California – Davis, Davis, CA

B-6: Student Perspectives on the Efficacy of Anticipatory Activities and a New Bioinformatics App
Tina Marcroft, San Diego State University, San Diego, CA
Scott Kelley, San Diego State University, San Diego, CA
Chris Rasmussen, San Diego State University, San Diego, CA

B-8: The Interactive Platform BioBeyond did not Increase Student Learning in an Accelerated Online Setting
Ana Maria Barral, National University, San Diego, CA
Veronica Ardi-Pastores, National University, San Diego, CA
Christopher Hendrickson, National University, San Diego, CA
Rachel E. Simmons, National University, San Diego, CA
Huda Makhluf, National University, San Diego, CA

B-10: Enhancing Introductory Biology Students’ Conceptual Understanding of and Attitudes Towards Osmosis and Diffusion through an Interactive Learning Module
David Esparza, The University of Texas at El Paso, El Paso, TX
Sebastian Schormann, University of Alabama at Birmingham, Birmingham, AL
Anna Jones, University of Alabama at Birmingham, Birmingham, AL
Samiksha A. Raut, University of Alabama at Birmingham, Birmingham, AL
Jeffrey T. Olimpo, The University of Texas at El Paso, El Paso, TX
B-12: Active Learning and Online Interactive Assignments Improve Learning Outcomes When Introduced into the Curriculum of a Large Introductory Microbiology Course

Daniel H. Buckley, Cornell University, Ithaca, NY
Samuel E. Barnett, Cornell University, Ithaca, NY
Esther R. Angert, Cornell University, Ithaca, NY

B-14: “Folding Space” for First Year Distance Education Students in a General Microbiology Course to Provide Relevance to a Diverse Cohort and an Experience on par with Being on Campus

Thiru Vanniasinkam, Charles Sturt University, Wagga Wagga, New South Wales, Australia
John Harper, Charles Sturt University, Wagga Wagga, New South Wales, Australia
George John, Charles Sturt University, Wagga Wagga, New South Wales, Australia
Andrea Campton, Charles Sturt University, Wagga Wagga, New South Wales, Australia

B-16: The Effect of Case Study and Flipped Classroom Pedagogy, in a First-Year Cell Biology Class, on Self-Assessed Learning Gains and Class Performance.

Sean T. Coleman, University of the Ozarks, Clarksville, AR

B-18: Impact of a Semester with Three Design-and-Improve Lab Modules on Introductory Students’ Statistical Reasoning and Experimental Design Skills and Sense of Autonomy

Iglika Pavlova, The University of North Carolina at Greensboro, Greensboro, NC

B-20: The Effects of a Molecular Modeling Seminar on Visual-Spatial Reasoning and Science Identity

Maureen Leonard, Mount Mary University, Milwaukee, WI
Colleen Conway, Mount Mary University, Milwaukee, WI
Laurel End, Mount Mary University, Milwaukee, WI

B-22: Easing Perceived Barriers to Course-based Research Experiences: Impact of the PARE Project

Elizabeth Genné-Bacon, Tufts University School of Medicine, Boston, MA
Jessica Henry, Tufts University School of Medicine, Boston, MA
Carol Bascom-Slack, Tufts University School of Medicine, Boston, MA

B-24: Engagement in a Place-based Health Disparities CURE Increases Students’ Science Process Skills Development, Grit, and Intracommunity Collaborations

Jennifer Apodaca, The University of Texas at El Paso, El Paso, TX
Yok-Fong Paat, The University of Texas at El Paso, El Paso, TX
Aimee Hernandez, The University of Texas at El Paso, El Paso, TX
Jeffrey T. Olimpo, The University of Texas at El Paso, El Paso, TX

B-26: The Benefits of Using Iterative Practices in a Microbial Biofilm Course-based Undergraduate Research Experience

Caitlin Light, Binghamton University, Binghamton, NY
Megan Fegley, Binghamton University, Binghamton, NY
Nancy Stamp, Binghamton University, Binghamton, NY

B-28: Metacognition and Critical Thinking Emerge as Key Goals in a Microbial Ecology CURE Lab

Samantha T. Parks, Georgia State University, Atlanta, GA

B-30: ENCOUR: Establishing a Network for the Integration of Ethics/RCR Education into CUREs in the Biological Sciences

Laura Diaz-Martinez, The University of Texas at El Paso, El Paso, TX
Ginger R. Fisher, University of Northern Colorado, Greeley, CO
Jay M. Bhatt, The University of Texas at El Paso, El Paso, TX
B-32: Impacts of the NSF STEM Scholars Program on Community College Student Success and Degree Completion

Renu B. Kumar, Minneapolis Community and Technical College, Minneapolis, MN
Maire Sustacek, Minneapolis Community and Technical College, Minneapolis, MN

B-34: Achieve Career Success in Science through Excellence (ACSScellence): Impacts of a Longitudinal, Research-Intensive Program on Students’ Development of Scientific Process Skills, Science Identity, and Attitudes in STEM

Aimee Hernandez, The University of Texas at El Paso, El Paso, TX
Laura Diaz-Martinez, The University of Texas at El Paso, El Paso, TX
Jeffrey T. Olimpo, The University of Texas at El Paso, El Paso, TX

B-36: The BIOMAN Academy: A Multi-College Approach to Enlightening High School Students to the Field of Biotechnology and Careers in Bioscience

Hetal Doshi, Montgomery County Community College, Blue Bell, PA
Cianna Cooper, Bucks County Community College, Newtown, PA
Linda Rehfuss, Bucks County Community College, Newtown, PA
Margaret Bryans, Montgomery County Community College, Blue Bell, PA

B-38: Health Sciences Microbiology Case Studies to Develop 21st Century Skills

Lisa Loeffelholz, San Jacinto College, Houston, TX

B-40: Incorporating Service-Learning into STEM

Ruth Gault, University of Nevada, Reno, NV
Meghan Schiedel, Terry Lee Wells Nevada Discovery Museum, Reno, NV
Abbey Grimmer, University of Nevada, Reno, NV
Stacey Muse, University of Nevada, Reno, NV

2:45 p.m. – 3:00 p.m.
Microbrew Session D (6 session options)

Microbrew Session 1D | Pecos
Wikipedia as a Platform for Student Literature Research and Communication
Jonathan LeCureux, Evangel University, Springfield, MO

Microbrew Session 2D | Sabine
The UNSW EF Model: a System for Development of Teaching and Learning-Focussed Academics
Julian Cox, UNSW Sydney, Sydney, NSW, Australia

Microbrew Session 3D | San Antonio
Biology Talk: Designing Engaging Discussions for Online Learning Environments
Mary V. Mawn, SUNY Empire State College, Saratoga Springs, NY

Microbrew Session 4D | San Marcos
Be the Microbe: Engaging Kinesthetic Learners in a Majors Microbiology Lecture
Jonna Coombs, Adelphi University, Garden City, NY
Microbrew Session 5D | Trinity A
Evolution of Sustainable CUREs for a Required Biology Lab
Patricia L. Hartzell, University of Idaho, Moscow, ID
Martina M. Ederer, University of Idaho, Moscow, ID

Microbrew Session 6D | Trinity B
Identification of Unknown Project Bacteria Using 16S rRNA Gene Analysis
Desiree Meyers, Wayne County Community College District, Detroit, MI

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

Microbrew Session 1E | Pecos
Icebreaker to Test Reflection — Using Student Interaction and Metacognition to Promote Student Success
Amy Miller, University of Cincinnati Blue Ash College, Blue Ash, OH

Microbrew Session 2E | Sabine
Raising Awareness of Policy Programs Among Undergraduate Science Students
Irene Glowinski, The American University, Washington, D.C.

Microbrew Session 3E | San Antonio
Using Learning Outcomes to Enhance Student Engagement and Course Assessment
Emily Nowicki, Curry College, Milton, MA

Microbrew Session 4E | San Marcos
Building a Respiratory Pathogen: A Review of Microbial Structures
Jamie Cunningham, Johnson County Community College, Overland Park, KS

Microbrew Session 5E | Trinity A
Incorporating Undergraduate Research Experiences in Biology Classroom
Mangala Tawde, Queensborough Community College, Bayside, NY

Microbrew Session 6E | Trinity B
Using an Inquiry-based Experiment to Teach Laboratory Skills in Bioengineering, Fermentation, and Bioprocessing
Jeanetta Floyd, Georgia State University, Atlanta, GA

3:25 p.m. – 3:40 p.m.
Microbrew Session F (6 session options)

Microbrew Session 1F | Pecos
Using the “Attitudes & Actions” Infographic to Engage Students in Metacognitive Reflection and Actions to Improve Learning Strategies
Iglika Pavlova, The University of North Carolina at Greensboro, Greensboro, NC
Meg Horton, The University of North Carolina at Greensboro, Greensboro, NC

Microbrew Session 2F | Sabine
A Science Faculty Learning Community to Facilitate Adoption of Evidence-based Teaching Practices
Lawrence Hobbie, Adelphi University, Garden City, NY
Emily Kang, Adelphi University, Garden City, NY
David Parkin, Adelphi University, Garden City, NY
Jessica Santangelo, Hofstra University, Hempstead, NY
Melissa Van Alstine-Parris, Adelphi University, Garden City, NY
Eugenia Villa-Cuesta, Adelphi University, Garden City, NY
Matthew Wright, Adelphi University, Garden City, NY

Microbrew Session 3F | San Antonio
Microbe Cards: An Active Approach to Learning Microbial Evolution, Diversity, and Phylogeny
Daniel H. Buckley, Cornell University, Ithaca, NY
Esther R. Angert, Cornell University, Ithaca, NY

Microbrew Session 4F | San Marcos
Developing Tactile Teaching Tools to Increase Inclusivity in Science Learning
Melissa V. Ramirez, University of Michigan, Ann Arbor, MI
Felix Harris, University of Michigan, Ann Arbor, MI
Andrew Phillips, University of Michigan, Ann Arbor, MI
Tessa Lacara, University of Michigan, Ann Arbor, MI
Hannah Clark, University of Michigan, Ann Arbor, MI
Claire L. Gordy, University of Michigan, Ann Arbor, MI

Microbrew Session 5F | Trinity A
A CURE: Identifying Ticks Infected with the Lyme Disease Pathogen, Borrelia burgdorferi
Rebekah Taylor, Frostburg State University, Frostburg, MD

3:40 p.m. – 4:00 p.m.
Break

Microbrew Session 1G | Pecos
Set for Success: Building Habits of Mind, Scientific Thinking and Confidence in a STEM-H Bridge Course at a Hispanic-Serving Institution
Martina Rosenberg, University of New Mexico, Albuquerque, NM
Sushilla Knottenbelt, University of New Mexico, Albuquerque, NM
Christine Smith, University of New Mexico, Albuquerque, NM

Microbrew Session 2G | Sabine
This Abstract is About Re-thinking the Assignment
Morrine Omolo, University of Minnesota, St. Paul, MN

Microbrew Session 3G | San Antonio
Central Dogma Made Simple Through Active Learning
Daniel H. Buckley, Cornell University, Ithaca, NY
Esther R. Angert, Cornell University, Ithaca, NY

Microbrew Session 4G | San Marcos
Students and Technology, from a Non-Tech Savvy Professor
Mary Shawgo, Graceland University, Lamoni, IA
Microbrew Session 5G | Trinity A

The Development of a Course-based Undergraduate Research Experience For a Microbiology Laboratory; Lessons Learned and the Positive Impact on Student Learning

Heather Townsend, Community College of Rhode Island, Warwick, RI

Microbrew Session 6G | Trinity B

Fastidious Engagement: Searching for Xylella fastidiosa in Leaf Samples during Botany Lab

Amy Jo Hammett, Texas Woman’s University, Denton, TX
Paramita Basu, Texas Woman’s University, Denton, TX
Lindsey Haynes, Texas Woman’s University, Denton, TX

4:20 p.m. – 4:35 p.m.
Microbrew Session H (6 session options)

Microbrew Session 1H | Pecos

Experiences with the Indo-US Teaching Professorship Program: Tips and Tools for International Education

Catherine Vrentas, Iowa State University, Ames, IA

Microbrew Session 2H | Sabine

Teaching Immunology Through Board Game Design

Christopher Parker, Texas Wesleyan University, Fort Worth, TX

Microbrew Session 3H | San Antonio

Help Me Doctor with My “23 and Me” Results

Steven W. Gorsich, Central Michigan University, Mount Pleasant, MI
**Microbrew Session 4H | San Marcos**

**Assessing Scientific Communication Skills: A Guide to Teaching Undergraduate Biology Students How to Access, Read and Interpret, Analyze, and Effectively Summarize a Primary Research Article**

Anne Spain, Ferris State University, Big Rapids, MI

**Microbrew Session 5H | Trinity A**

**Combination of the Prevalence of Antibiotic Resistance in the Environment (PARE) and Authentic Research Experience in Microbiology (AREM) Projects as a Course-based Undergraduate Research Experience.**

Sean T. Coleman, University of the Ozarks, Clarksville, AR

**Microbrew Session 6H | Trinity B**

**Teaching Koch’s Postulates Hands-on in a Safe, Easy, and Fun Way with Plant Pathogens**

Sara Klee, Penn State University, University Park, PA

Timothy McNellis, Penn State University, University Park, PA

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**4:40 p.m. – 5:00 p.m.**

**Microbrew Session I (6 session options)**

**Microbrew Session 1I | Pecos**

**The Use of Discussion Boards to Increase Student Engagement and Student Learning**

Rebecca Sparks-Thissen, University of Southern Indiana, Evansville, IN

**Microbrew Session 2I | Sabine**

**DNA Day: A Learning Experience for High School and Graduate Students**

Rebecca M. Pollet, University of Michigan, Ann Arbor, MI

Christina N. Vallianatos, University of Michigan, Ann Arbor, MI

Jacob L. Mueller, University of Michigan, Ann Arbor, MI

**Microbrew Session 3I | San Antonio**

**Demystifying the Scientific Literature: Five Strategies to Implement in Your STEM Classroom**

Marshall Hayes, Kean University, Union, NJ

**Microbrew Session 4I | San Marcos**

**Encouraging Academic Honesty and Integrity: A Rubric for Faculty**

John Buchner, University of Maryland, College Park, MD

Ramei Del Rosario Gomez, University of Maryland, College Park, MD

Katherine Izsak, University of Maryland, College Park, MD

Erin Moody, University of Maryland, College Park, MD

Alan C. Peel, University of Maryland, College Park, MD

Linda C. Schmidt, University of Maryland, College Park, MD

Ann C. Smith, University of Maryland, College Park, MD

Angela R. Jones, University of Maryland, College Park, MD
Sunday, July 29

8:00 a.m. – 9:00 a.m.
Breakfast on your own

9:00 a.m. – 11:00 a.m.
Plenary | Wedgwood Ballroom

25 Years of ASMCUE and STEM Education: Past, Present and Future

Spencer A. Benson, Education Innovations International Consulting [Eii-Consulting, LLC], University Park, MD

Workshop | Wedgwood Ballroom

Charting the Future of Microbiology/Biology Education at ASM

Facilitated by Spencer A. Benson

11:15 a.m. – 11:30 a.m.
Closing Remarks | Wedgwood Ballroom

Jeffrey T. Olimpo, Jaclyn Madden, and ASM Staff

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