Sunday, 28 July

8am **Workshop and Demo Prep**
JSB-258
Chaired by: April French

8:30am **Experiential Chemistry: A hands-on laboratory-based course for non-majors**
JSB-218
Chaired by: Marc Richard

Experiential Chemistry: A hands-on laboratory-based course for non-majors
» Marc Richard, Elizabeth Pollock

8:30am **ChemMatters: Building Curiosity and Encouraging Science Literacy**
JSB-108
Chaired by: Kelley Donaghy

ChemMatters: Building Curiosity and Encouraging Science Literacy
» Kelley Donaghy

8:30am **Introduction to Integrating Green Chemistry and Sustainability in Undergraduate Teaching Laboratories**
JSB-114
Chaired by: John De Backere

Introduction to Integrating Green Chemistry and Sustainability in Undergraduate Teaching Laboratories
» Jonathon Moir, John De Backere, David Laviska, Jane Wissinger

8:30am **Activities to develop international standards for ethics in chemistry**
JSB-231
Chaired by: Susan Schelble

Activities to develop international standards for ethics in chemistry
» Susan Schelble, Kelly Elkins

8:30am **Designing and implementing high-engagement collaborative group work activities in chemistry classrooms**
JSB-243
Chaired by: Vicente Talanquer

Designing and implementing high-engagement collaborative group work activities in chemistry classrooms
» Renée Cole, Gregory Rushton, Vicente Talanquer

8:30am **Peak Potential: Affordable Solutions for Instructing Electrochemical Techniques**
JSB-244
Chaired by: Melissa Hill

Peak Potential: Affordable Solutions for Instructing Electrochemical Techniques
» Melissa Hill

8:30am **Moving Students From Description to Explanation with VisChem**
JSB-347
Chaired by: Ellen Yezierski

Moving Students From Description to Explanation with VisChem
» Ellen Yezierski, Roy Tasker

8:30am **Cultivating Inclusivity and Equity in the Classroom**
JSB-357
Chaired by: Andrea Carter

Continued from **Sunday, 28 July**

Cultivating Inclusivity and Equity in the Classroom
» Andrea Carter, Alexandra Ormond

10am **Break**

10:15am **Play It to Remember It; Effective Activities to Engage Student Learning**
JSB-108
Chaired by: Peggy Au

Play It to Remember It; Effective Activities to Engage Student Learning
» Peggy Au

10:15am **Teaching Essential Chemistry Content Through Demonstrations**
JSB-244
Chaired by: Jeramy DeBry

Teaching Essential Chemistry Content Through Demonstrations
» Jeramy DeBry

11:45am **Lunch**

1pm **S306: The Post-Exam Classroom: Using Authentic Assessments to Build 21st-Century Skills**
CP-103
Chaired by: Lindy Stoll

1pm **Introduction (S306)**
» Lindy Stoll

1:06pm **Encouraging Creativity in Chemistry Through Creative Final Projects**
» Teresa Eaton

1:27pm **Using a Lab Practical to Assess Lewis Structures and Intermolecular Forces**
» Hannah Nandor

1:48pm **The 'Real World' After Graduation- Insights Into Teaching and Advising Chemistry Students**
» Tim Saarinen

2:09pm **Roundtable Conversation: Integrating Career-Ready Skills Development Into the Curriculum (S306)**
» Lindy Stoll

1pm **S310: Professional Development for Pre-College Educators: Grants, Technology, and Resources within the Education Community**
CP-111
Chaired by: Esther Hines

1pm **Introduction (S310)**
» Esther Hines

1:06pm **Oh The Places You'll Go! ACS Resources, Opportunities and Hierarchy**
» Roxie Allen

1:27pm **Content, Community, & Cultivating a Love of Chemistry**
» Erica Posthuma

1:48pm **Collaboration, reviewer calibration, peer feedback, and professional development in one PAC!**
» Michael Garoutte, Eileen Kowalski, Mary van Opstal, Melissa Reeves, Caryl Fish, Brandon Fetterly

2:09pm **Mentoring at the United States Chemistry Olympiad Camp**
» Esther Hines

1pm **S191: ACS-CES Award Symposium for Incorporation of Sustainability into Chemical Education**
CP-114
Chaired by: Jane Wissinger

Continued from **Sunday, 28 July**

1pm **Introduction (S191)**
» Jane Wissinger

1:06pm **Using Green Chemistry to Address Environmental Injustices: A Set of Assignments that Explore the Intersection of Scientific Ethics, the Chemical Literature, and Communication Skills**
» Jessica Tischler

1:27pm **Greening the Introductory Organic Chemistry Laboratory: Sustainable Practices in Action**
» Menggi Zhang, Elizabeth Day, Melanie Cooper, Hunter McFall-Boegeman, Steven Petritis

1:48pm **Incorporating Green Chemistry, Sustainability, and Climate Change Themes into the First-Year Chemistry Curriculum and Outreach Activities**
» A M Ranjika (Dharshi) Bopegedera

1pm **S218: Building Bonds: Fostering a Sense of Belonging in Large-Enrollment Chemistry Courses**
CP-139
Chaired by: Theodore Alivio and Alicia Altemose

1pm **Introduction (S218)**
» Elinor Soult

1:06pm **Changing Hearts and Minds about Chemistry: Creating a Productive Learning Environment by Fostering a Sense of Belonging and Collaboration in Introductory Chemistry**
» Amy Graham

1:27pm **Student Sense of Belonging and Confidence in General Chemistry**
» Nicole Karn, Jennifer Collins, Makda Berhe, Sarah Ogrin-Cortarlan

1:48pm **Using course data to generate student-specific messaging in large enrollment courses: Preliminary use of personalized messaging to target less engaged students to improve sense of belonging and course persistence**
» Lisa Nguyen, Rebecca Ricciardo

2:09pm **The Impacts of Science Belonging and Unbelonging in Gateway POGIL Classes**
» Matthew Horn, Charity Lovitt, Tracey Murray, Olga Glebova

1pm **S278: Implementing Active Learning in the First Two Years of Chemistry Coursework**
CP-153
Chaired by: Michelle Brooks

1pm **Introduction (S278)**
» Michelle Brooks

1:06pm **Using Branding and Project-Based Learning in General Chemistry**
» Silas Towne

1:27pm **Experiences from Implementing and Incorporating Active Learning in Large First-Year General Chemistry classes**
» Bhavani Balasubramanian

1:48pm **A Case Study of Classroom Implementation of Active Learning**
» Jack Huang

2:09pm **Active Learning Strategies to Teach Molecular Structure Using C-13 NMR**
» Scott Donnelly

1pm **S61: Engaging Students in Organic Chemistry**
CP-155
Chaired by: Patricia Kreke

1pm **Introduction (S61)**
» Elinor Soult

Continued from **Sunday, 28 July**

1:06pm **Card Game for Learning Organic Functional Groups**
» Marsha Grimminger

1:27pm **From STEM to STEAM: Bringing the Arts and Pop Culture into Organic Chemistry via Project-Based Learning**
» Jordan Mader

1:48pm **Enhancing Interest, Enthusiasm and Performance in the Beginning Organic Chemistry Course: History, Biography and Polymer Science**
» Bob Howell

2:09pm **Organic Chemistry and Second Language: A response to Laszlo (2013)**
» Robert Ferguson, David Cartrette

1pm **S77: Low Barrier Professional Development**
CP-183
Chaired by: Kristina Stefaniak

1pm **Introduction (S77)**
» Kristina Stefaniak

1:06pm **Faculty Professional Development Opportunities at ACS**
» Michelle Brooks, Kerry Barnett, Wasiu Lawal, Ashlie Wrenne

1:27pm **Finding Support in Communities of Practice for a Time of Transition: An Autobiographical Case Study**
» Christine Morales

1:48pm **Panel Discussion, Continued (S77)**
» kim woodrum

1pm **S36: Assessment Instruments: Design, Development, and Evaluation**
CP-201
Chaired by: Molly Atkinson and Jack Barbera

1pm **Introduction (S36)**
» Elinor Soult

1:06pm **Considerations when Using Assessment Instruments**
» David Hamilton, Molly Atkinson

1:27pm **Trends and guidance on presenting validity evidence in Chemistry Education Research and Practice**
» Scott Lewis

1:48pm **Instrument development and use in the Journal of Chemical Education (2010 - 2024)**
» Tina Marcroft, Ruo Ning (Nancy) Qiu, Regis Komperda

1pm **S91: Catalyzing Innovations in Chemistry Education Research: Harnessing the Power of Machine Learning and Generative Artificial Intelligence**
CP-208
Chaired by: Field Watts

1pm **Introduction (S91)**
» Elinor Soult

1:06pm **Emerging Applications of Generative Artificial Intelligence in Chemistry Education: Trends and Connections (View from the Editors' Porch)**
» Elizabeth Yuriev, Donald Wink, Thomas Holme

1:27pm **The Role of Prompt Engineering on ChatGPT-Generated Explanations of Organic Chemistry Reaction Mechanisms**
» Brandon Yik, Amber Dood

1:48pm **Using Machine Learning to Identify Aspects of Argumentation in Students' Written Arguments about Phenomena in Organic Chemistry**
» Amber Dood, Field Watts, Ginger Shultz

2:09pm **Q&A Session (S91)**
» kim woodrum

Continued from **Sunday, 28 July**

1pm **S177: Assessment and Measurement in Research and Practice**
CP-211
Chaired by: Kristen Murphy

1pm **Introduction (S177)**
» Elinor Soult

1:06pm **What's new at ACS Exams: New exams, instructional materials, workshops and ways to get involved**
» Olga Michels, Sachin Nedungadi, Jaclyn Trate, Kristen Murphy

1:27pm **Investigating the Assessment of Preparatory Knowledge for the First-Year Chemistry Course**
» Pinky A McCoy, David Courson, Joshua Wallach

1:48pm **Planning and Evaluating Large Scale Studies of Student Chemistry Learning Using Clickers as a Teaching and Data Collection Tool**
» Melonie Teichert, Regis Komperda, Diane Bunce, Maria Schroeder, Debra Dillner, Dianne Luning Prak

2:09pm **A Program-Level Assessment of Student Understanding of Thermodynamics, Equilibrium, and Kinetics in the Chemistry Major**
» Melonie Teichert, Shirley Lin, Amy MacArthur, Virginia Smith, Elizabeth Yates

1pm **S307: TA Training with Global Graduate Students**
CP-220
Chaired by: Jennifer Monahan

1pm **Introduction (S307)**
» Jennifer Monahan

1:06pm **Implementation IOC Training Course for Graduate Teaching Assistants (GTAs) to Improve Consistency, Efficiency and Pedagogy**
» Ozlem Yavuz-Petrowski, Evonne Rezler, Jennifer Krill, Abigail Perkins, Julie Golden-Botti

1:27pm **What a GTA Wants: Training and Professional Development Requests by Graduate Teaching Assistants**
» Michelle Herridge, Chloe Sells

1:48pm **Enhancing Support for International Teaching Assistants in Chemistry Higher ED: Perspectives and Recommendations**
» Jovita Ogechi Daraezinwa, Oluwatosin Obisesan, Udara Wickramarathne

2:09pm **How to Train Your Teaching Assistants in a Way that is Fun and Rewarding**
» Sandra Lukaszewski-Rose

1pm **S25: General Chemistry Lab: Curriculum and Best Practices**
CP-222
Chaired by: Jenine Maeyer

1pm **Introduction (S25)**
» Elinor Soult

1:06pm **Firework Research: A New Twist on a General Chemistry Laboratory Practical**
» Alexandra Tamerius, Zachary Sibila

1:27pm **Transition Metal Coordination Chemistry Lab Re-Design**
» Ramona Heitmann

1:48pm **Odyssey by PocketLab: An All-In-One Smart Phone Chemistry Assistant**
» John Suchocki

2:09pm **Using Repetition, Rubrics and Personalized Feedback to Improve Lab Writing Skills in General Chemistry Labs**
» Susan Thomas, Hadi Arman, Sarah Oerther

Continued from **Sunday, 28 July**

1pm **S223: Solutions to Success: First- and Second-year Initiatives and Programs to Support STEM Diversity**
CP-287
Chaired by: Laura Anna

1pm **Introduction (S223)**
» Laura Anna

1:06pm **Incorporating Diversity and Inclusivity Through Creative projects**
» Lauren Woods, Jefferson Bates

1:27pm **The Formation and First Three Years of a Chemistry Success Center at a Large State Institution**
» Emily E. Hardy, Chris Freeman, Pinky A McCoy, Andrea Stephen, Joshua Wallach

1:48pm **Leveraging a Traditionally non-STEM Grant to Fund Summer Research Experiences (SRE) for Undergraduate STEM Students.**
» Michael Gutierrez

2:09pm **Panel Discussion (S223)**
» kim woodrum

1pm **S225: Innovative Assessments in Introductory Chemistry Courses: Introducing More Effective Ways to Determine What Your Students Know**
CP-297
Chaired by: Lisa Hibbard

1pm **Introduction (S225)**
» Lisa Hibbard

1:06pm **Development of a Novel Measure of Organic Chemistry Students' Deep Understanding of Science Practice**
» Matthew Breuer, Alena Moon, John Zhou

1:27pm **Student Perspectives on Generating and Using Their Own Crib Sheets for Exams in Introductory Chemistry**
» Elizabeth McGinitie, Brian Rempel, Hope Zimmerman

1:48pm **Analyzing Student Generated Exam Crib Sheets in Introductory Chemistry**
» Brian Rempel, Elizabeth McGinitie, Hope Zimmerman

1pm **S38: Team-Based Learning: Implementation, Practice, and Evaluation**
JSB-103
Chaired by: Tamra Legron-Rodriguez and Julie Donnelly

1pm **Introduction (S38)**
» Tamra Legron-Rodriguez

1:06pm **Five Years of Team-Based Learning: The Best, the Worst, & the Hopes for Continued Growth**
» Amy Gottfried

1:27pm **Exploring Team Composition, Function, and Performance in an Upper-Level, Team-Based Learning Forensic Chemistry Course**
» Tamra Legron-Rodriguez, Linne Goberville, Patria Marcano Maldonado, Julie Donnelly

1:48pm **Indicators of Team Function in a Large Enrollment Team-Based Learning General Chemistry Course**
» Julie Donnelly, Patria Marcano Maldonado, Linne Goberville, Tamra Legron-Rodriguez

1pm **S109: Organic Chemistry for Non-Chemistry Majors**
JSB-203
Chaired by: Travis Lund

1pm **Introduction (S109)**
» Travis Lund

Continued from **Sunday, 28 July**

1:06pm **Looking Past the Pre-Requisite Pigeonhole: Engaging Non-Chemistry Majors in Organic Chemistry Courses**
» Racquel DeCicco

1:27pm **Fostering Non-Major Student Engagement in Organic Chemistry 1**
» Sarah Zingales

1:48pm **Organic Chemistry Preparation for the Future Physician: the MEDPREP Approach**
» Tayler Hill, Anneke Metz

2:09pm **Incorporating Second-Chance Testing in Undergraduate Chemistry Education in a Large Classroom**
» Akiko Nakamura

1pm **S1961: General Papers**
JSB-213

1pm **Introduction (S1961)**
» kim woodrum

1:06pm **Nanomaterials for Sustainable Water Remediation: Comparative Analysis of Carbon Adsorbents for Dyes Removal**
» Felipe Cordova Lozano, Ana Karen Cordova Estrada, Sandra Guzman, Adán Zorrila, Miguel San Juan

1:27pm **Exploring Students' Perceptions and Opportunities for Curriculum Reform in an Academic Development Programme Chemistry Course**
» Tisetso Mosala, Kgadi Mathabathe, Rethabile Tekane

1:48pm **Assessing the integration of e-learning platforms in achieving effective teaching and learning of Chemistry in college of education in Anambra State, Nigeria**
» Franklin Ibe

2:09pm **Increasing Student Interest in Chemistry Using Real-World Applications**
» Stacy Stegall

1pm **S267: Chemistry Education Research: Graduate Student Research Symposium**
JSB-321
Chaired by: Michelle Herridge

1pm **Introduction (S267)**
» Elinor Soult

1:06pm **Social Dynamics in the Undergraduate General Chemistry Laboratory**
» Riley Eisert-Sasse, Laura Cruz

1:27pm **Embedding Team Science in Course-Based Undergraduate Research Experiences: Key elements**
» Clark Andersen, Joi Walker

1:48pm **Comparing the Progressions of Epistemological Messages and Laboratory Teaching Assistant Perspectives Across Two Sequences of a General Laboratory Chemistry Course**
» Dalyanne Hernandez, Matt Wu

2:09pm **Teaching Acid-Base Chemistry in the Laboratory: A comparative case study on teaching assistants' didactics and pedagogy**
» Cassandra Miller, Matt Wu

1pm **Collaborative Huddle Engaging Magnification: CHEM**
JSB-218
Chaired by: Kameyo Johnson

Collaborative Huddle Engaging Magnification: CHEM
» Kameyo Johnson

Continued from **Sunday, 28 July**

1pm **Using Pipet Bulb Rockets to Introduce Stoichiometry**
JSB-208
Chaired by: Bean Burr

Using Pipet Bulb Rockets to Introduce Stoichiometry
» Bean Burr

1pm **Assessment of Impacts of Green Chemistry Curriculum**
JSB-114
Chaired by: Alexey Leontyev

Assessment of Impacts of Green Chemistry Curriculum
» Alexey Leontyev, Yujuan Liu

1pm **It's All Fun and Games When Everyone Learns!**
JSB-231
Chaired by: Barbara van Kuiken

It's All Fun and Games When Everyone Learns!
» Barbara van Kuiken

1pm **Teaching Essential Chemistry Content Through Demonstrations**
JSB-244
Chaired by: Jeramy DeBry

Teaching Essential Chemistry Content Through Demonstrations
» Jeramy DeBry

1pm **Food in the Chemistry Class**
JSB-261M
Chaired by: Sunil Malapati

Food in the Chemistry Class
» Sunil Malapati, Elizabeth Pollock

1pm **REAL Chemistry: Relevant, Equitable, Active Learning Courseware for General Chemistry**
JSB-357
Chaired by: Mark Blaser

REAL Chemistry: Relevant, Equitable, Active Learning Courseware for General Chemistry
» Mark Blaser, David Yaron, Sandra Raysor, Gizelle Sherwood, Josh Hartman, Ariel Anbar

2:30pm **Break**

2:45pm **S306: The Post-Exam Classroom: Using Authentic Assessments to Build 21st-Century Skills**
CP-103
Chaired by: Lindy Stoll

2:45pm **Introduction (S306)**
» Lindy Stoll

2:51pm **Incorporating Elevator Speech Activities Across Multiple Courses**
» Lindy Stoll

3:12pm **Development of an Upper-Level Elective Course Where Students Determine Course Grading and Course Topics**
» Julia Paredes

3:33pm **Roundtable Conversation: Fostering Shared Student Workloads in Group Projects (S306)**
» Lindy Stoll

3:54pm **Roundtable Conversation: Authentic Assessments at Scale (S306)**
» Lindy Stoll

Continued from **Sunday, 28 July**

2:45pm **S310: Professional Development for Pre-College Educators: Grants, Technology, and Resources within the Education Community**
CP-111
Chaired by: Esther Hines

2:45pm **Introduction (S310)**
» Esther Hines

2:51pm **ACS Hach Grants and Resources**
» Michael Mury, Kenetia Thompson

3:12pm **Using Professional Development to Build Community**
» Michael Mury

3:33pm **VisChem Research into Practice: Visualizing the molecular world to make sense of chemistry symbolism and mathematics**
» Roy Tasker, Ellen Yezierski

3:54pm **Next level professional development for teachers: The Math and Science Manufacturing Experience**
» Brian Aldrich, Audra Swarthout, Heather Brey

2:45pm **S191: ACS-CES Award Symposium for Incorporation of Sustainability into Chemical Education**
CP-114
Chaired by: Jane Wissinger

2:45pm **Introduction (S191)**
» Jane Wissinger

2:51pm **Developing Systems Thinking Through the Chemistry of Laundry Detergent and its Influence on Society, the Economy and the Environment**
» Lynne Pilcher, Micke Reynders, Marietjie Potgieter

3:12pm **Advancing Public Health Education Through Understanding UN SDG 6: Clean Water and Sanitation for 12th Grade Pupils**
» Altantogos Myagmar

3:33pm **Panel Discussion and Awards (S191)**
» Jane Wissinger

2:45pm **S218: Building Bonds: Fostering a Sense of Belonging in Large-Enrollment Chemistry Courses**
CP-139
Chaired by: Theodore Alivio and Alicia Altemose

2:45pm **Introduction (S218)**
» Elinor Soult

2:51pm **Mentoring at-risk students in large enrollment General Chemistry 1**
» Martina Sumner

3:12pm **Students' Senses of Belongingness and Implications for Improving Classroom Instruction, Diversity, Equity, and Inclusion in General Chemistry Courses**
» Abayneh Gurmu, Keila Muller, Zamira Torres, Camila Senespleda, Tamra Legron-Rodriguez

3:33pm **Role Models and Representation Affect Pre-Health Professional Identity (PHPI) Development**
» Schetema Nealy, Dorna Ektefaie, Sheba George

2:45pm **S278: Implementing Active Learning in the First Two Years of Chemistry Coursework**
CP-153
Chaired by: Michelle Brooks

2:45pm **Introduction (S278)**
» Michelle Brooks

Continued from **Sunday, 28 July**

2:51pm **Measuring the Abundance of Active Learning and Formative Assessment Use in Chemistry Courses at Two-Year Postsecondary Institutions: Results of a National Survey**
» Kendall Zammit, Megan Connor, Jeffrey Raker

3:12pm **Panel Discussion (S278)**
» Michelle Brooks

2:45pm S61: Engaging Students in Organic Chemistry
CP-155
Chaired by: Patricia Kreke and Animesh Aditya

2:45pm **Introduction (S61)**
» Elinor Soult

2:51pm **Investigating Students' Reasoning on Acid and Base Strength through Scaffolded Prompts**
» Betul Demirdogen, Isaiah Nelsen, Scott Lewis

3:12pm **Building an Immersive Organic Chemistry Learning Experience**
» Jennifer Prado, Vanessa dos Reis Falcao, Allie Brandriet, Ali Sattari

3:33pm **The use of Chirality-2 in a First Year Organic Chemistry Class: Student Perceptions of the Mobile Gaming App**
» Rethabile Tekane, Tisetso Mosala

3:54pm **EVQ (Embedded Video Question) Feedback as a Mechanism of Establishing a Communication Channel**
» Sarah Dimick Gray

2:45pm S32: Inclusive Practices for Unrepresented Groups in STEM
CP-179
Chaired by: Nicole Lapeyrouse and Tamra Legron-Rodriguez

2:45pm **Introduction (S32)**
» Nicole Lapeyrouse

2:51pm **Deficit and Anti-Deficit Framing: A Systematic Review of the Literature**
» Elizabeth Vaughan, Nicole James

3:12pm **Bridging Chemistry and Society: Integrating Social Justice in Undergraduate Education**
» Omar Villanueva

3:33pm **Is it Possible to Predict a Student's Final Grade in General Chemistry I?**
» Kariluz Davila-Diaz

3:54pm **Panel Discussion and Q&A (S32)**
» kim woodrum

2:45pm S77: Low Barrier Professional Development
CP-183
Chaired by: Kristina Stefaniak

2:45pm **Introduction (S77)**
» Kristina Stefaniak

2:51pm **Can Something be Both a Little Thing and a Big Thing? Yes!**
» Keith Anliker

3:12pm **Science Communication Volunteering as Low Commitment Professional Development for Teachers**
» Emily Kerr

3:33pm **Building Community Through a STEM Education Journal Club: Engagement & Projects After Two Years**
» Michelle Herridge

3:54pm **Academic Connections & Professional Development Lunch Series for Non-Tenure Track Faculty**
» Jennifer Monahan

Continued from **Sunday, 28 July**

2:45pm **S36: Assessment Instruments: Design, Development, and Evaluation**
CP-201
Chaired by: Molly Atkinson and Jack Barbera

2:45pm **Introduction (S36)**
» Elinor Soult

2:51pm **Exploring Students' Confidence Judgments in Two-Tiered Assessments**
» Casandra Koevoets-Beach, Morgan Balabanoff, Karen Julian

3:12pm **Preliminary Results of the Application of an Item Writing Flaw Analysis for the College Wide Final Exam for an Introductory Chemistry Course**
» Eric Cotton, Linda Prentice, PJ Mitchell

3:33pm **Not all incorrect responses are equally incorrect: a modeling approach to assigning partial credit**
» David Schreurs, Jaclyn Trate, Sachin Nedungadi, Olga Michels, Chrystal Bruce, Melissa Reeves, Patricia Kreke, Keith Marek, Thomas Pentecost, Jeffrey Raker, Kristen Murphy

2:45pm **S91: Catalyzing Innovations in Chemistry Education Research: Harnessing the Power of Machine Learning and Generative Artificial Intelligence**
CP-208
Chaired by: Field Watts

2:45pm **Introduction (S91)**
» Elinor Soult

2:51pm **Breaking Language Barriers: Allowing Multiple Languages in Chemistry Courses Via Multilingual Machine Learning**
» Paul Martin, Nicole Graulich

3:12pm **Grading with Artificial Intelligence in General Chemistry Lab I**
» Olivia Harwick, John Wiginton, Jason Pearson

3:33pm **Using Unsupervised Machine Learning to Investigate Categorization of Introductory Chemistry Students' Responses to Open-Ended Assessment Items**
» Field Watts, Jon-Marc Rodriguez

3:54pm **Q&A Session (S91)**
» kim woodrum

2:45pm **S177: Assessment and Measurement in Research and Practice**
CP-211
Chaired by: Kristen Murphy

2:45pm **Introduction (S177)**
» Elinor Soult

2:51pm **The development of a constructed response measure of students' knowledge of atomic spectra**
» Haiyan Alfulaiti, Alena Moon

3:12pm **Embedding Real-world Contexts in a General Chemistry Lecture Course and Assessment of the Impacts on Learning Outcomes**
» Jacinta Mutambuki, S.M. Ifat Hossain Sristy, Caroline Muteti, Yolanda Vasquez

3:33pm **Cognitive Diagnosis of Student Performance on Chemistry via Item Analysis and Data Visualization**
» Christian Tang, Yi-Hsin Chen, Sherrisse Bryant, Kristine Hogarty

3:54pm **Use of Gradescope by Turnitin in General Chemistry Course**
» Monica Khural, Nataliya A. Markina, Minh-Sang Lu

2:45pm **S307: TA Training with Global Graduate Students**
CP-220
Chaired by: Jennifer Monahan

Continued from **Sunday, 28 July**

2:45pm **Introduction (S307)**
» Jennifer Monahan

2:51pm **Prioritizing Graduate Teaching Assistants Training for Introductory Chemistry Courses: An Investigation of How Graduate Teaching Assistants Influence Student Discourse**
» Hannah Nennig, Carson Lovig, Renée Cole

3:12pm **Rehearsal-Based Training in a Mixed-Reality Teaching Simulator to Support the Diverse Needs of GTAs in Active Learning Environments**
» Erin Saitta

2:45pm **S25: General Chemistry Lab: Curriculum and Best Practices**
CP-222
Chaired by: Jenine Maeyer

2:45pm **Introduction (S25)**
» Elinor Soult

2:51pm **Enhancing Scientific Writing Skills in Undergraduate Chemistry: A Curriculum Approach and Assessment**
» Michelle Morgan, Grace Murray, Emma Johnson, Eugene Wagner

3:12pm **Enhancing Science Writing Skills Through Scaffolding and Consistent Feedback in Lab Courses With Labflow**
» Elizabeth Crowe

3:33pm **Backward Laboratory Course Design: Focus on a Central Theme**
» Brenda Harmon, Simbarashe Nkomo

2:45pm **S223: Solutions to Success: First- and Second-year Initiatives and Programs to Support STEM Diversity**
CP-287
Chaired by: Laura Anna

2:45pm **Introduction (S223)**
» Laura Anna

2:51pm **A 2-year Institution's Approach to Providing Accessible Research Opportunities for Underserved STEM Students**
» Brandon White, Becky Mercer

3:12pm **PrepareCTP - ACS' Strategic Initiative on Fostering a Skilled Technical Workforce**
» John-David R. Rocha

3:33pm **Panel Discussion (S223)**
» kim woodrum

2:45pm **S225: Innovative Assessments in Introductory Chemistry Courses: Introducing More Effective Ways to Determine What Your Students Know**
CP-297
Chaired by: Lisa Hibbard

2:45pm **Introduction (S225)**
» Lisa Hibbard

2:51pm **Using Specifications-Based Grading in a Flipped General Chemistry II Course**
» Broden Bunnell, Lauren LeBourgeois, James Doble, Brian Gute, Jacob Wainman

3:12pm **A Hybrid Approach to Specifications Grading in Introductory Chemistry at Two Community Colleges**
» Amy Nicely, Christina Beatty

2:45pm **S38: Team-Based Learning: Implementation, Practice, and Evaluation**
JSB-103
Chaired by: Tamra Legron-Rodriguez and Julie Donnelly

2:45pm **Introduction (S38)**
» Tamra Legron-Rodriguez

Continued from **Sunday, 28 July**

2:51pm **Collaboration and Career Development in a Research Methods Course**
» Gigi Ray

3:12pm **Unveiling Student Engagement in the Flipped Classroom: Insights from Self-Determination Theory**
» Nikita Burrows

3:33pm **Panel Discussion and Q&A (S38)**
» kim woodrum

2:45pm **S237: Learning Chemistry Beyond the Traditional Classroom**
JSB-203
Chaired by: Marco Zimmer-De Iuliis

2:45pm **Introduction (S237)**
» Marco Zimmer-De Iuliis

2:51pm **External Partners within the Aurora University Chemistry Curriculum**
» Kyle McElhoney, Ami Johanson, Juan Colon Santana, Chetna Patel

3:12pm **Using a Hybrid Course Structure to Facilitate Three Dimensional Learning: Incorporating Reform-minded Instruction within a Traditional General Chemistry Curriculum**
» Jack Eichler

3:33pm **Advancing Students' Scientific Identities Through Collaborative Science Workshops: A Case Study Merging Computational Chemistry and Electrochemistry Alongside Data Science in a Real-world Context**
» Rebekah Duke-Crockett, Chad Risko, Judy Jenkins, Craig Teague

3:54pm **Q&A Session (237)**
» kim woodrum

2:45pm **S1961: General Papers**
JSB-213

2:45pm **Introduction (S1961)**
» kim woodrum

2:51pm **ChatGPT Assistance in Creating Chemistry Practice Problems: Pitfalls, Positives, and Possibilities**
» Mike Christiansen

3:12pm **Providing a framework: Intermolecular forces using the van der Waals equation**
» William Tucker

2:45pm **S267: Chemistry Education Research: Graduate Student Research Symposium**
JSB-321
Chaired by: Michelle Herridge

2:45pm **Introduction (S267)**
» Elinor Soult

2:51pm **Exploring the Relationship Between Undergraduate Students' Perceptions of Chemistry Labs and Their Career Goals**
» Oluwaseun Agunbiade, Oluwatobi Odeleye

3:12pm **The Earlier the Better? A longitudinal study of undergraduate research experiences**
» Hayden Criswell, Jacob Pleasants

3:33pm **Developing Connections Between CURE Labs and Career Applications Beyond Academia**
» Kristel Forlano, Amanda Buchberger

3:54pm **Investigating External Factors That Impact STEM Student's Relationship With Their Major and Future Profession**
» Amanda Lindquist, Macayla Barnett, Cameron Bechard, Tamra Legron-Rodriguez, Nicole Lapeyrouse

Continued from **Sunday, 28 July**

2:45pm **Manipulatives for Chemistry: Helping Kids See**
JSB-108
Chaired by: Maricar Harris

Manipulatives for Chemistry: Helping Kids See
» Maricar Harris

2:45pm **Building a kinetics unit plan using American Association of Chemistry Teachers (AACT) resources**
JSB-244
Chaired by: Shannon Smith

Building a kinetics unit plan using American Association of Chemistry Teachers (AACT) resources
» Jeramy DeBry, Shannon Smith

5pm **Welcome to BCCE 2024**
Singletary Center
Chaired by: Allison Soult

5:30pm **Keynote**
Singletary Center for the Arts - Concert Hall

ChemUnity: Coming Together to Shape the Future of Chemistry Education
» Maria Gallardo-Williams

Monday, 29 July

7am **Breakfast**
Champions Kitchen, inside Gatton Student Center

8am **Workshop Demo and Prep**
JSB-258

8:30am **S86: Survival Skills 101: A Guide for Newer Teachers**
CP-103
Chaired by: Amiee Modic

8:30am **Introduction (S86)**
» Amiee Modic

8:36am **We are all Spiders!**
» Roxie Allen

8:57am **Take, Borrow, Share, and Make it Your Own**
» Sherri Rukes

9:18am **Stow and Go**
» Amiee Modic

8:30am **S88: Bridging the Gap Between Secondary and Higher Education Chemistry**
CP-111
Chaired by: Ryan Stowe

8:30am **Introduction (S88)**
» Elinor Soult

8:36am **Teaching High School Chemistry in a "New Normal": Strategies That Increase Engagement, Performance and Equity**
» Caroline Gochoco-Tsuyuki

8:57am **Strengthening College Readiness: Collaborative Research and Communication Between High School and College STEM Educators**
» Eric Davenport, Kimberley Frederick

Continued from **Monday, 29 July**

9:18am **More preparation for college chemistry is a good thing, right? Not always.**
» Binyomin Abrams

9:39am **Building Community by Leveraging Opportunities for In-Service and Pre-Service Teachers to Support Each Other**
» Adam Schafer

8:30am **S242: Integrating Green Chemistry and Sustainability into Chemistry Education**
CP-114
Chaired by: Loyd Bastin and David Laviska

8:30am **Introduction (S242)**
» Loyd Bastin

8:36am **Why Should We Teach Our Students About Sustainability?**
» Jessica Parr

8:57am **Systems thinking in chemistry and visualizing complexity for future sustainability**
» Micke Reynders, Thomas Holme, Bryce Platte

9:18am **Systems thinking in chemistry: Importance of systems dynamics**
» Katherine Aubrecht

9:39am **An inquiry based activity: The life cycle analysis of solar panels with a combined lens of U.N. Sustainable Development Goals and green chemistry**
» Meghna Dilip, Margaret Kerr

8:30am **S218: Building Bonds: Fostering a Sense of Belonging in Large-Enrollment Chemistry Courses**
CP-139
Chaired by: Theodore Alivio and Alicia Altemose

8:30am **Introduction (S218)**
» Elinor Soult

8:36am **Expanding the Teaching Team: Undergraduate Learning Assistants in General Chemistry**
» Paula Weiss

8:57am **A culture of Care in Chemistry Classrooms**
» Jovita Ogechi Daraezinwa

9:18am **Active Learning at Scale: Enhancing Academic Outcomes in Introductory Chemistry**
» Kimberly Arnold

9:39am **Social interactions increase belonging in collaborative POGIL classrooms**
» Charity Lovitt, Tracey Murray, Matthew Horn, Olga Glebova, Giselle Mak, Darian Castillo

8:30am **S214: Active Learning Strategies in Chemistry with Large Enrollment Lectures**
CP-153
Chaired by: Rebecca Loy

8:30am **Introduction (S214)**
» Elinor Soult

8:36am **The Effectiveness of Undergraduate Learning Assistants in Large-Enrollment Courses Across Different Learning Spaces**
» Anna Curtis, Carribeth Bliem, Danielle Zurcher

8:57am **Use of Structured Learning Assistants in Large STEM courses**
» Aleeta Powe, Lenore Hoyt, Danielle Franco, Jadwiga Kuta, Geoffrey Bailey

9:18am **Effectiveness of Adding Learning Assistants into General Chemistry I at a Hispanic Serving Institution**
» Cynthia Luxford, Case Lasater, Manishabal Kaur, Alice Olmstead, Eleanor Close, Li Feng, Heather Galloway

Continued from **Monday, 29 July**

9:39am **Flipping After a Pandemic: A Case Study Over Two Years**
» Stephen George-Williams, Sue Hemsley, Fran van den Berg, Timothy Lee

8:30am **S61: Engaging Students in Organic Chemistry**
CP-155
Chaired by: Patricia Kreke and Animesh Aditya

8:30am **Introduction (S61)**
» Elinor Soult

8:36am **A Sophomore Organic Chemistry Laboratory Course from the Undergraduates to the High School Students in a Summer Program**
» Niharika Botcha

8:57am **Strategies for Addressing Post-COVID Deficits in a Large Enrollment Organic Chemistry Course**
» Alicia Frantz

9:18am **Calculating 1H-NMR and 13C-NMR Chemical Shifts in Samples Prepared by Students**
» Christine Hermann

9:39am **Enhancing Spectroscopy Learning in the Undergraduate Classroom**
» Christine Theodore

8:30am **S32: Inclusive Practices for Unrepresented Groups in STEM**
CP-179
Chaired by: Nicole Lapeyrouse and Tamra Legron-Rodriguez

8:30am **Introduction (S32)**
» Nicole Lapeyrouse

8:36am **Inclusive Pedagogy for Neurodivergent Chemistry Students**
» Christin Monroe

8:57am **Exploring Socializing Experiences of Students Representing Historically Marginalized Groups in Chemistry Doctoral Programs**
» Adeesha Jayathilaka, Minjung Ryu

9:18am **Empowering the Next Generation of Latinas in STEAM**
» Liz Diaz

9:39am **Panel Discussion and Q&A (S32)**
» kim woodrum

8:30am **S36: Assessment Instruments: Design, Development, and Evaluation**
CP-201
Chaired by: Molly Atkinson and Jack Barbera

8:30am **Introduction (S36)**
» Elinor Soult

8:36am **Evaluation of the Departmental Climate around Diversity, Equity, and Inclusion (DCaDEI) Survey**
» Lu Shi, Christiane Stachl, Maia Popova

8:57am **Measuring Affect: Validity and Reliability of the AMS-C in Postsecondary Inorganic Courses**
» Justin Pratt, Anne Bentley, Shirley Lin, Jeffrey Raker, Barbara Reisner, Sheila Smith, Joanne Stewart

9:18am **Investigating How Chemistry Students' Reported Challenges Inform the Relationship between Mindset and Academic Performance**
» Betul Demirdogen, Scott Lewis

9:39am **Measuring mindset more accurately with the Undergraduate Lay Theories of Abilities (ULTrA) Survey**
» Lisa Limeri, Nathan Carter, Franchesca Lyra, Joel Martin, Halle Mastronardo, Jay Patel, Erin Dolan

Continued from **Monday, 29 July**

8:30am **S156: Educational Research in the Science Classroom**
CP-208
Chaired by: Melody Jewell

8:30am **Introduction (S156)**
» April French

8:36am **Integrating Quantitative Data Collection and Analysis into Chemistry Demonstrations**
» Tom Kuntzleman

8:57am **Incorporating Action Research into the M.S. Chemistry – Chemistry Education Program at South Dakota State University**
» Melody Jewell, Matt Miller

9:18am **Teachers as Researchers: Implementing Action Research in the Chemistry Classroom**
» Ryan Johnson

9:39am **Engaging College Chemistry Faculty in Collaborative Action Research for Professional Development**
» Abdul Rauf, Donald Wink, Minjung Ryu

8:30am **S177: Assessment and Measurement in Research and Practice**
CP-211
Chaired by: Kristen Murphy

8:30am **Introduction (S177)**
» Elinor Soult

8:36am **The many flavors and opportunities for modeling national norms**
» David Schreurs, Jaclyn Trate, Sachin Nedungadi, Olga Michels, Chrystal Bruce, Melissa Reeves, Patricia Kreke, Keith Marek, Thomas Pentecost, Jeffrey Raker, Kristen Murphy

8:57am **Advancing Equity in Chemical Education Research: An Inclusive Approach to Structural Equation Modeling Path Analysis with Multigroup Moderation**
» Ronia Kattoum, Mark Baillie

9:18am **North vs. South: An Instructor's View on the Assessment of Student Performance in Multiple Choice Questions in Organic Chemistry Laboratory Final Exam**
» Robert Torregrosa

9:39am **Quantitative Assessment of Self Reported Student Learning Gains in a Biochemistry Lab CURE**
» Arthur Sikora, Monica Aguiar, Santanu De, Ambika Kapil, Omar Saleh, Radleigh Santos, Raghavi Vuppala

8:30am **S260: From Theory to Practice: Showcasing How CER Researchers Apply Theories and Methods for Inquiry**
CP-220
Chaired by: Jon-Marc Rodriguez

8:30am **Introduction (S260)**
» April French

8:36am **Investigating Undergraduate Student Perceptions Related to Academic Integrity: Theoretical and Methodological Considerations**
» Jon-Marc Rodriguez

8:57am **Mapping instructor epistemologies as they prompt for and evaluate knowledge products**
» Nicole Greco, Kimberly DeGlopper, Cara Schwarz, Rosemary Russ, Ryan Stowe

9:18am **Social science research paradigms and their impact on data interpretation within chemistry education research**
» Stephanie Feola, Lundon Pinneo, Ronia Kattoum, Michael Moore, Mark Baillie

9:39am **Feminist Methods for Chemistry Education Research**
» Elizabeth Day, Karen Santillan, Jeffrey Olimpo

Continued from **Monday, 29 July**

8:30am **S25: General Chemistry Lab: Curriculum and Best Practices**
CP-222
Chaired by: Jenine Maeyer

8:30am **Introduction (S25)**
» Elinor Soult

8:36am **Characterizing Student Engagement in Planning Investigations in a Thermochemistry-Based Project in the General Chemistry Lab**
» Oscar Judd, Lyn Haugh, Ruhi Rahman

8:57am **Open-Inquiry Project-Based General Chemistry Lab: We Did It, You Can Too**
» Sara Almansberger, William Kennerly, Cindy Sood

9:18am **Incorporating Inquiry and Instrumental Analysis in General Chemistry Laboratory**
» Kyle Knust

9:39am **Moving Away From Experiment of the Week: Creating a More Cohesive General Chemistry Lab Experience**
» Graeme Wyllie

8:30am **S34: Activation Barriers to Well-being: Challenges and Approaches to Promoting Well-being for Students, Faculty, and Staff**
CP-287
Chaired by: Margaret Meadows

8:30am **Introduction (S34)**
» Kathryn Kloepper

8:36am **Promoting Well-being and Learning in the Classroom**
» Holly Currie

8:57am **Potential Effects of Undergraduate Research Participation on Student Well-being**
» Evelyn Boyd, Kelly Lazar

9:18am **Achieving Outcomes While Focusing on Student Self-Care in the Analytical Classroom**
» Gretchen Potts

9:39am **Ten Minutes a Semester: Updates on a Wellness Intervention**
» Kathryn Kloepper, Margaret Meadows

8:30am **S199: Best Practices in Academic Advising and Mentoring**
CP-297
Chaired by: Amanda Carroll

8:30am **Introduction (S199)**
» Elinor Soult

8:36am **Chemistry Advising at Tennessee Tech University- Experiences and Advice With a Student Centered Focus**
» Amanda Carroll

8:57am **Communicating Information to Students via Advising**
» Amy Gottfried

9:18am **The Development of an AI Academic Advising Assistant to Support Underserved, First Time in College, and Transfer Students in a Chemistry and Physics Department.**
» Christopher Randles, Zhongzhou Chen, Maria Langworthy, Mary Nelson, Jana Ibrahim

9:39am **Empowering Underrepresented Students in Science Education Through Personalized Coaching**
» Stephanie Santos-Diaz

8:30am **S255: Biochemistry Education: Discussions of the Lecture Learning Environment**
JSB-103
Chaired by: Carly Schnoebelen

Continued from **Monday, 29 July**

8:30am **Introduction (S255)**
» Elinor Soult

8:36am **Using Augmented Reality in Molecular Case Studies to Enhance Biomolecular Structure-Function Explorations in Lecture Courses**
» Didem Vardar Ulu, Saif Ragab, Swati Agrawal, Shuchismita Dutta

8:57am **From Competence to Practice: Engaging with Relational Ontology for a Post-Human Framework to Investigate Biochemistry Students Learning With External Representations**
» Song Wang, Stanley Lo, Thomas Bussey

9:18am **Exploring Biochemistry Students' Mechanistic Reasoning in Metabolism**
» Sara Johnson, Sharifa Love-Rutledge, Keenan Noyes

9:39am **Panel Discussion (S255)**
» kim woodrum

8:30am **S241: ChemEd X Presents Demonstrations to Engage Your Students and Augment Student Learning**
JSB-121
Chaired by: Deanna Cullen

8:30am **Introduction (S241)**
» Deanna Cullen

8:36am **Dollar Store Demonstrations**
» Karen Sorensen

8:57am **Am I Breaking Bonds?**
» Scott Milam

9:18am **Pedagogy for Engaging Demonstrations for the High School Classroom**
» Chad Husting

9:39am **Simple and Effective Demonstrations for 11/AP Chemistry Using Simple Chemicals and Equipment**
» Michael Jansen

8:30am **S237: Learning Chemistry Beyond the Traditional Classroom**
JSB-203
Chaired by: Marco Zimmer-De Iuliis

8:30am **Introduction (S237)**
» Marco Zimmer-De Iuliis

8:36am **Bringing Significant Scientific Discoveries to Life: Executing a Travel Class that Connects the History of Science and Chemistry with Cultural Events**
» Sharon Hamilton, Sara Hubbard

8:57am **Exploring the Value of Video Beyond Lecture Recordings**
» Silas Towne

9:18am **Chemistry Concepts on YouTube: How Well Do Educational Videos Support Conceptual Learning of Intermolecular Forces?**
» Sophia Gudinas, Leah Zajac, Ryan Sweeder, Deborah Herrington

9:39am **Connecting Classroom Concepts to Daily Life Using the Podcast Chemistry For Your Life**
» Melissa A. Collini

8:30am **S267: Chemistry Education Research: Graduate Student Research Symposium**
JSB-321
Chaired by: Michelle Herridge

8:30am **Introduction (S267)**
» Elinor Soult

Continued from **Monday, 29 July**

8:36am **Characterizing Resources Students Use to Understand Chemical Equilibrium Phenomenon**
» Veeda Scammahorn, Melanie Cooper

8:57am **The Challenge of Knowledge Integration in Chemistry**
» Onyinye Ikenyirimba, Vicente Talanquer

9:18am **Cognitive Resource Activation by Chemistry Graduate Students and Faculty when Discussing Entropy**
» Jennifer England, Rebecca Weber, Molly Atkinson

9:39am **Investigating Students' Mechanistic Reasoning of Solubility Equilibria Concepts from General Chemistry through Graduate Chemistry**
» Uche Osuji, Suazette Mooring

8:30am **Centering High School Chemistry Class on Making Sense of Phenomena**
JSB-218
Chaired by: Brie Bradshaw

Centering High School Chemistry Class on Making Sense of Phenomena
» Brie Bradshaw, Adam Schafer, Lindsay Wells, Emily Adams, Ryan Stowe

8:30am **Inclusive first day and syllabus tips**
JSB-108
Chaired by: Sarah Kennedy

Inclusive first day and syllabus tips
» Sarah Kennedy, Merrie Winfrey, Kristina Stefaniak

8:30am **The POGIL Project Workshop: Fundamentals of POGIL**
JSB-114
Chaired by: Laura Parmentier

The POGIL Project Workshop: Fundamentals of POGIL
» Laura Parmentier, Joan Roque

8:30am **From pedagogical research to classroom implementation**
JSB-231
Chaired by: Jack Huang

From pedagogical research to classroom implementation
» Jack Huang

8:30am **Transforming Chemistry Education: The Power of Personification, Storytelling, and Inclusivity**
JSB-243
Chaired by: Rajasree Swaminathan

Transforming Chemistry Education: The Power of Personification, Storytelling, and Inclusivity
» Rajasree Swaminathan

8:30am **Reimagining Introductory Chemistry Laboratory Curriculum: Skills-Based, Competency-Focused Lab Curriculum**
JSB-337
Chaired by: Sean Mo

Reimagining Introductory Chemistry Laboratory Curriculum: Skills-Based, Competency-Focused Lab Curriculum
» Sean Mo, Simba Nkomo

8:30am **Fueling Education Transformation: The Dynamic Chemistry of Community-Based Learning**
JSB-347
Chaired by: Carmen Velez, PhD

Fueling Education Transformation: The Dynamic Chemistry of Community-Based Learning
» Carmen Velez, PhD, Yi Jin Kim Gorske, PhD, Emily Lesher, PhD, Wendy E. Schatzberg, PhD, Melanie DiLorenzo, Ria J. Betush, PhD, Kamila Deavers, Ph.D

Continued from **Monday, 29 July**

8:30am **Computational Chemistry in Your Learning Space**
JSB-357
Chaired by: Jason Sonnenberg

Computational Chemistry in Your Learning Space
» Jason Sonnenberg, Angela Migues

10am **Break**

10:15am **S86: Survival Skills 101: A Guide for Newer Teachers**
CP-103
Chaired by: Amiee Modic

10:15am **Introduction (S86)**
» Amiee Modic

10:36am **Pedagogy for College Chemistry: Training Future Faculty**
» Betsy Ratcliff, Michelle Richards-Babb

10:57am **Nurturing Inquiry: Simple Phenomena for New Chemistry Teachers**
» Eric Davenport

11:18am **Panel discussion (S86)**
» Amiee Modic

10:15am **S263: The Evolution of ALEKS Organic Chemistry**
CP-111
Chaired by: Elizabeth Walters

10:15am **Introduction (S263)**
» Elizabeth Walters

10:21am **Employing ALEKS to Maximize Student Potential in Organic Chemistry**
» Elizabeth Walters

10:42am **The DNA of an ALEKS Organic Learning Objective**
» Brandon Dietrich

11:03am **New Challenges for ALEKS in Organic Chemistry**
» Christopher Grayce

11:24am **Adaptive Homework Platforms in Large Classroom Settings**
» Andrea Baldwin

10:15am **S242: Integrating Green Chemistry and Sustainability into Chemistry Education**
CP-114
Chaired by: Loyd Bastin and Jonathon Moir

10:15am **Introduction (S242)**
» Loyd Bastin

10:21am **Green chemistry and the U.N. Sustainable Development Goals: Harnessing their combined power**
» Meghna Dilip, Margaret Kerr

10:42am **An educational framework for teaching chemistry using a systems thinking approach**
» Vicente Talanquer, Alisha Szozda

11:03am **Sustainable polymers in the classroom and laboratory: Teaching a systems thinking approach towards responsible chemistry innovations**
» Jane Wissinger

11:24am **Q&A Session (S242)**
» kim woodrum

10:15am **S218: Building Bonds: Fostering a Sense of Belonging in Large-Enrollment Chemistry Courses**
CP-139
Chaired by: Theodore Alivio and Alicia Altemose

Continued from **Monday, 29 July**

10:15am **Introduction (S218)**
» Elinor Soult

10:21am **CAMP: Chemistry Applications Media Projects - An Online Chemistry Learning Community**
» Josh Edwards, Zachary Martinez, Alicia Altemose

10:42am **The role of undergraduate laboratory assistants in bridging the divide between instructors and students in General Chemistry courses.**
» Lea Gustin, Stephen Block

11:03am **Synergistic Transformations: Interplay of Research Initiatives in Chemical Education and Pedagogical Practice**
» Resa Kelly, John Kim

11:24am **The Summer Enrichment Chemistry Workshop: Empowering Students for Success**
» Rita Hatfield, Mustafa Demirbuga, Donald Wink

10:15am **S214: Active Learning Strategies in Chemistry with Large Enrollment Lectures**
CP-153
Chaired by: Rebecca Loy

10:15am **Introduction (S214)**
» Elinor Soult

10:21am **Semi-Flipped Technique to Engage General Chemistry Students**
» Mohammad Rabbani

10:42am **Distributed Active Learning (DAL): An Approach to Reduce Class Size in Large Enrollment Courses**
» Ted Clark, Rebecca Ricciardo, Daniel Turner

11:03am **Making Large-Enrollment Classes Seem Smaller – A Menu of Effective Techniques**
» Aleeta Powe, Lenore Hoyt, Sarah Zurkhulen, Haley McCoy

11:24am **Pedagogical Reform in Introductory Chemistry: Impacts on Student Attitudes and Learning**
» Nicole James, Kodinna Anachebe

10:15am **S61: Engaging Students in Organic Chemistry**
CP-155
Chaired by: Patricia Kreke and Animesh Aditya

10:15am **Introduction (S61)**
» Elinor Soult

10:21am **Finding the Time for Active Learning in Organic Chemistry and Why It's Worth It**
» Brian Woods

10:42am **Helping Students Bridge Between General Chemistry and Organic Chemistry: Introducing Mindful Doodling into Organic Chemistry I Courses at Georgia Gwinnett College**
» Michael Morton

11:03am **Effectiveness of Active Learning Techniques Coupled with Student Self-Reflection in an Organic Chemistry Classroom at a 4-Year Public College**
» Ajay Mallia

11:24am **Bridging the Gap Between Organic Chemistry and Biochemistry at a Regional Campus**
» Ryan Yoder, Renee Bouley

10:15am **S32: Inclusive Practices for Unrepresented Groups in STEM**
CP-179
Chaired by: Nicole Lapeyrouse and Tamra Legron-Rodriguez

10:15am **Introduction (S32)**
» Nicole Lapeyrouse

Continued from **Monday, 29 July**

10:21am **Recruiting, Retaining, and Preparing Underrepresented STEM Students**
» Mark Jensen

10:42am **DEI in Practice at DePaul**
» Timothy French

11:03am **ICABL Workshops: A Community of Practice for Diversifying Leadership and Representation in Biochemistry and Molecular Biology Education**
» Kimberly Lane, Jennifer Bobenko, Kimberly Cortes, Victoria Del Gaizo Moore, Daniel Dries, Peter Kennelly, Jennifer Loertscher, Ludmila Tyler

11:24am **Panel Discussion and Q&A (S32)**
» kim woodrum, Nicole Lapeyrouse

10:15am **S82: Small Teaching - Making Modest but Powerful Changes to Improve Student Learning**
CP-183
Chaired by: Kevin Stewart

10:15am **Introduction (S82)**
» Kevin Stewart

10:21am **Spaced Retrieval Practice in Introductory Chemistry Courses: Designing Learning Objectives and Questions**
» Lenore Hoyt, Campbell Bego, Patricia Ralston, Jason Immekus, Keith Lyle

10:42am **Student Study Plan Reflection Assignment: A Small Intervention to Improve Student Learning**
» Stephanie Brouet, Jennifer Chaytor, M. Patricia Cavanaugh

11:03am **Establishing a Growth-Mindset Framework in the Chemistry Classroom**
» Kevin Stewart

11:24am **Making Stoich Stick**
» Laura Prescott

10:15am **S36: Assessment Instruments: Design, Development, and Evaluation**
CP-201
Chaired by: Molly Atkinson

10:15am **Introduction (S36)**
» Elinor Soult

10:21am **Development and Evaluation of a Measure of Student By-in in Undergraduate Chemistry Laboratory Courses**
» Elizabeth Vaughan, Jack Barbera

10:42am **Supporting chemistry students' science practice self-efficacy**
» Leah Zohner, Sachel Villafane-Garcia, Alena Moon

11:03am **Development and validation of the Perceptions of Grading Schemes instrument**
» Brandon Yik, Haleigh Machost, Adriana Streifer, Michael Palmer, Lisa Morkowchuk, Marilyne Stains

11:24am **Assessing Answer-Until-Correct Item Validity**
» Kristen Murphy, David Schreurs, Jaclyn Trate, Shalini Srinivasan, Melonie Teichert, Cynthia Luxford, Jamie Schneider

10:15am **S156: Educational Research in the Science Classroom**
CP-208
Chaired by: Melody Jewell

10:15am **Introduction (S156)**
» April French

10:21am **Measurement of Time to Interpret and Draw Four Different Representations of Organic Molecules**
» Daniel Silverio, Julianna Decker, Emily Diproperzio, Scott Buzzolani, Matthew Mistretta, Aleksandra Bugajczyk, Samantha Elezi

Continued from **Monday, 29 July**

10:42am **Student Generated Connections to Chemistry Content in Introductory Chemistry**
» Michael Hands Hands

11:03am **Making "Electrons in Atoms" a Relevant and Engaging Curriculum Unit that Incorporates the Everyday Life of Non-College Bound Students**
» Brenna McIlvoy, Susan Wiediger

11:24am **Beyond the Spectacle of the Hydrogen Balloon Demonstration, Increasing the Impact of Demonstrations on Learning**
» Daniel Willems

10:15am **S132: The Theory and Practice of Analytical Chemistry In the Classroom**
CP-211
Chaired by: Matt Queen

10:15am **Introduction (S132)**
» Matt Queen

10:21am **Investigation of Student Understanding and Attitudes Towards an Analytical Chemistry Laboratory Case Study on the East Palestine Train Derailment**
» Nicole Karn

10:42am **Reframing the instrumental chemistry curriculum: Imbedding a comprehensive conceptual framework within professional skill-building, guided-inquiry activities**
» Juliette Lantz, Caryl Fish

11:03am **Formulating Learning Goals, Tasks, and Assessment Strategies to Integrate Professional Skills into Classroom Activities**
» Caryl Fish, Juliette Lantz

10:15am **S260: From Theory to Practice: Showcasing How CER Researchers Apply Theories and Methods for Inquiry**
CP-220
Chaired by: Jon-Marc Rodriguez

10:15am **Introduction (S260)**
» April French

10:21am **A Semiotic Approach to Studying Students' Representational use During Collaborative Impasses**
» Joel Beier, Martina Rau, Sam Pazicni

10:42am **Conceptual Analysis: Modeling Student Understandings of Electron Configurations**
» Morgan Vincent, Neil Hatfield

11:03am **Leveraging the Pedagogical Content Knowledge model to understand how instructors' prior knowledge and students' difficulties affect symmetry instruction**
» Lu Shi, Shanna Hilborn, Zoe Edmonson, Sam Pazicni, Maia Popova

10:15am **S25: General Chemistry Lab: Curriculum and Best Practices**
CP-222
Chaired by: Jenine Maeyer

10:15am **Introduction (S25)**
» Elinor Soult

10:21am **Reimagining the Chemistry On-Ramp: Accessible, Affordable Scaffolding in the General Chemistry Laboratory**
» Karen Downey, Sarah Wolf, Andrew Roering, Jeff Werner

10:42am **Linking Core Concepts and Competencies: Towards an Integrated Framework for General Chemistry**
» Vijay Vyas, Scott Reid

11:03am **When Curricular Emphases Change**
» Stephen Block, Lea Gustin

Continued from **Monday, 29 July**

10:15am **S34: Activation Barriers to Well-being: Challenges and Approaches to Promoting Well-being for Students, Faculty, and Staff**
CP-287
Chaired by: Kathryn Kloepper

10:15am **Introduction (S34)**
» Kathryn Kloepper

10:21am **Advisor-Advisee Relationships in Chemistry Doctoral Programs: Conflict Resolution and Mental Health**
» Tingting Qu, Jordan Harshman

10:42am **Overcoming Adversity in the Classroom: Using a Mixed-Reality Training Simulator to Instill Resilience Among Graduate Teaching Assistants**
» Jabdiel Laboy Santana, AJ Sona, Chelsea LeNoble, Erin Saitta

11:03am **Tools, Tips, and Resources: A Time Management Workshop for First-Year Graduate Teaching Assistants**
» Daria Sokic-Lazic, Sebastian Arteaga

11:24am **Morning Panel Discussion (S34)**
» Kathryn Kloepper

10:15am **S255: Biochemistry Education: Discussions of the Lecture Learning Environment**
JSB-103
Chaired by: Carly Schnoebelen

10:15am **Introduction (S255)**
» Elinor Soult

10:21am **Utilization of a Problem-Based Learning Activity in a Nonmajors Biochemistry Course**
» Daniel Landfried

10:42am **Effective Pedagogies in Biochemistry Lecture at a Regional-Public University**
» Ashley M. Loe

11:03am **Assessing Depth of Knowledge and Understanding of Protein Structure from Individual Student-created Activities in a First-Semester Biochemistry Course**
» Stephen Testa

10:15am **S241: ChemEd X Presents Demonstrations to Engage Your Students and Augment Student Learning**
JSB-121
Chaired by: Deanna Cullen

10:15am **Introduction (S241)**
» Deanna Cullen

10:21am **The Material History of Soap: Thirty Demonstrations Exploring the Beauty, Utility, and Versatility of Soap**
» Julian Silverman

10:42am **Chemical Demonstrations with Household Items**
» Tom Kuntzleman

11:03am **Q&A Session (S241)**
» kim woodrum

11:24am **Conductivity Demos: Teaching Chemistry with "Current Events"**
» Michael Farabaugh

10:15am **S237: Learning Chemistry Beyond the Traditional Classroom**
JSB-203
Chaired by: Marco Zimmer-De Iuliis

10:15am **Introduction (S237)**
» Marco Zimmer-De Iuliis

Continued from **Monday, 29 July**

10:21am **How to Navigate the Content vs. Context Balance in General Chemistry**
» Bradley Fahlman

10:42am **Leveraging the Lab Experience: Inspiring Students in First-Year Chemistry**
» Marco Zimmer-De Iuliis, Kris Kim, Svetlana Mikhaylichenko

11:03am **Investigating the Impact of Aquatic Chemistry Focused Activities on Undergraduate Students' Interest and Understanding of Aquatic Chemistry**
» Heike Gomez, Sonia Miller Underwood

11:24am **Q&A Session (S237)**
» kim woodrum

10:15am **S267: Chemistry Education Research: Graduate Student Research Symposium**
JSB-321
Chaired by: Michelle Herridge

10:15am **Introduction (S267)**
» Elinor Soult

10:21am **A Perceptual Learning-Based Intervention Study of Molecular Polarity and the Role of Molecular Representations**
» Cheryl Lavoie, Christopher Bauer

10:42am **Characterizing Undergraduate Students' Cognitive Resource Activation when Solving VSEPR Theory Problems**
» Olajumoke Ayeni, Molly Atkinson

11:03am **How Ordering Concrete and Abstract Representations in Intermolecular Force Chemistry Tasks Influences Students' Thought Processes on the Location of Dipole-Dipole Interactions**
» Isaiah Nelsen, Ayesha Farheen, Scott Lewis

11:24am **Proficiency in Structure Decoding: Exploring the impact of structural features on students' consideration of resonance**
» Irina Braun, Nicole Graulich

10:15am **Integrating Artificial Intelligence in Chemistry Education: Strategies for Enhancing Higher Ed Learning**
JSB-108
Chaired by: Corey Beck

Integrating Artificial Intelligence in Chemistry Education: Strategies for Enhancing Higher Ed Learning
» Corey Beck

10:15am **Digital Learning Strategies for K-12 Chemistry Classrooms**
JSB-243
Chaired by: Dorothy Holley

Digital Learning Strategies for K-12 Chemistry Classrooms
» Dorothy Holley

11:45am **Lunch**

2pm **S242: Integrating Green Chemistry and Sustainability into Chemistry Education**
CP-114
Chaired by: Loyd Bastin and Amelia Anderson-Wile

2pm **Introduction (S242)**
» Loyd Bastin

2:06pm **Green chemistry modules: Creation and implementation using Faculty Mentoring Networks (FMNs) as an innovative approach**
» David Laviska, Sarah Prescott

2:27pm **Isolation of microplastics and student perceptions of their environmental footprint**
» Kelly Hall, Amelia Anderson-Wile

Continued from **Monday, 29 July**

2:48pm **Creating a culture of sustainability and green chemistry at Widener University**
» Loyd Bastin

3:09pm **Fostering a culture of sustainability; Is teaching the principles of green chemistry sufficient?**
» David Laviska

2pm **S133: Active and Inquiry Learning in the Chemistry Teaching Laboratory**
CP-139
Chaired by: Alex Grushow and Melissa Reeves

2pm **Introduction (S133)**
» Alex Grushow

2:06pm **Guided-inquiry capstone experiments in genchem labs to promote critical thinking**
» John Farrar

2:27pm **Developing scientific writing abilities across the laboratory curriculum through guided and active learning cycles**
» Emma Johnson, Eugene Wagner, Michelle Morgan, Grace Murray

2:48pm **What to do with only a single semester of physical chemistry lab?**
» Alex Grushow

2pm **S214: Active Learning Strategies in Chemistry with Large Enrollment Lectures**
CP-153
Chaired by: Rebecca Loy

2pm **Introduction (S214)**
» Elinor Soult

2:06pm **"Is Didactic Lecturing Dead?": Crafting a Dynamic Learning Experience Through Playposit in a Large Enrollment Extended General Chemistry**
» Christine Altinis-Kiraz

2:27pm **Coupling iClicker And Peer-To-Peer Learning to Maintain a High Engagement of the Students in Large Enrollment STEM Classes**
» Jelena Samonina

2:48pm **Beyond Active Learning: Using 3-Dimensional Learning to Create Scientifically Authentic, Student-Centered Classrooms**
» Melanie Cooper

3:09pm **Leveraging Practice Exams for Test-Enhanced Learning: A Multifaceted Approach**
» Matt Stoltzfus

2pm **S61: Engaging Students in Organic Chemistry**
CP-155
Chaired by: Patricia Kreke

2pm **Introduction (S61)**
» Elinor Soult

2:06pm **Carbohydrate Sweetener Identification (CSI): An Undergraduate Laboratory Experiment to Identify Carbohydrates and Non-Nutritive Sweeteners**
» Ann E. Shinnar

2:27pm **Teaching Medicinal Chemistry as Context for Concepts in Physical Organic Chemistry**
» Sarah Dimick Gray

2:48pm **Pushing Arrows in Enzyme Active Sites: Anchoring a Medicinal Chemistry Elective with Fundamentals of Organic Chemistry**
» Animesh Aditya

Continued from **Monday, 29 July**

3:09pm **Development of the "Active Atom" Technique to Increase Student Proficiency in Proposing and Interpreting Mechanisms in Organic Chemistry**
» Daniel Silverio

2pm **S217: Cultivating Inclusivity and Equity in the Classroom**
CP-179
Chaired by: Alexandra Ormond

2pm **Introduction (S217)**
» April French

2:06pm **Generating Chemistry : Community Building, Metacognition, and the First Day of Class**
» Allison Kelly

2:27pm **Redesign of General Chemistry – Who Is It Really Helping?**
» Estelle Lebeau

2:48pm **Impact of Learning Assistants on Students' Sense of Inclusion and Identity Within the STEM Classroom**
» Elijah Roth, Karstin DuPont, Kaitlyn Fitzgerald, Bradley McCoy

3:09pm **Using Student Faculty Partnership Program (SFPP) To Enhance Inclusivity in Active Learning Classrooms.**
» Sari Paikoff

2pm **S82: Small Teaching - Making Modest but Powerful Changes to Improve Student Learning**
CP-183
Chaired by: Kevin Stewart

2pm **Introduction (S82)**
» Kevin Stewart

2:06pm **Chemistry: The Coupling Science**
» Laura Van Dorn, Andrei Sanov

2:27pm **The Impact of Small Teaching Innovations on Student Participation and Engagement in an Upper-Level Chemistry Course at a Large Public Research University over Multiple Semesters**
» Chris Freeman

2:48pm **The Price of Precision: Significant Figures and the Student Experience**
» Ryan Britt, Melissa Weinrich

3:09pm **Lab Report Revisions in Undergraduate Organic Laboratory**
» Justine Olson

2pm **S36: Assessment Instruments: Design, Development, and Evaluation**
CP-201
Chaired by: Molly Atkinson

2pm **Introduction (S36)**
» Elinor Soult

2:06pm **Two instruments for assessing student green chemistry knowledge: the Green Chemistry Generic Comparison (GC)2 prompt and the Assessment of Student Knowledge for Green Chemistry Principles (ASK-GCP)**
» Krystal Grieger, Annie Schiro, Alexey Leontyev

2:27pm **Adaptation and Validation of a Concept Inventory for Undergraduate Organic Chemistry**
» Christopher Nix, Esther Francom, Keven Luciano, Paul Lawrence, Dmitry Kolpashchikov, Erin Saitta

2:48pm **Different Types of Validity Evidence Gathered During the Development of a Resonance Concept Inventory**
» Grace Tetschner, Sachin Nedungadi

3:09pm **Using the organic chemistry representational competence assessment (ORCA) to understand student competence with representations of molecular structure**
» Lyniesha Ward, Fridah Rotich-Too, Jeffrey Raker, Regis Komperda, Maia Popova

Continued from **Monday, 29 July**

2pm **S175: Reflections from Pandemic Teaching and Beyond: Caring for our Students While Learning to Care for Ourselves and Each Other**
CP-208
Chaired by: Clarissa Sorensen-Unruh

2pm **Introduction (S175)**
» Clarissa Sorensen-Unruh

2:06pm **COVID and the Nature of Science: Bringing in Real-Life Experiences to the General Chemistry Curriculum**
» Geri Kerstiens

2:27pm **COVID Impact on Freshman Student Preparedness for General Chemistry**
» Kathleen Morrissey, Alex Ma

2:48pm **Student Engagement in Makeshift HyFlex General Chemistry Courses**
» Jayashree (Jay) Ranga

3:09pm **Care in the Classroom as a Tool of Transformation**
» Sushilla Knottenbelt, Clarissa Sorensen-Unruh

2pm **S132: The Theory and Practice of Analytical Chemistry In the Classroom**
CP-211
Chaired by: Matt Queen

2pm **Introduction (S132)**
» Matt Queen

2:06pm **Does it Sink or Float? - Investigating Density, Hydrophilicity, and log P**
» David Fraley

2:27pm **Using AI to personalize learning and support student skill development in Analytical Chemistry**
» Kimberley Frederick

2:48pm **Pick your Own Adventure: Orthogonal Methods for Analyzing Polyphenols**
» Amanda Buchberger, Madeline Lund, Pamela Doolittle, Dominic Colosi, Kristel Forlano, Kyoung-Shin Choi, Robert Hamers

3:09pm **Instructional Strategies for a Stand-Alone Instrumental Analysis Course**
» Kristina Proctor

2pm **S260: From Theory to Practice: Showcasing How CER Researchers Apply Theories and Methods for Inquiry**
CP-220
Chaired by: Jon-Marc Rodriguez

2pm **Introduction (S260)**
» Jon-Marc Rodriguez

2:06pm **Knowledge in pieces theory and card sorting methodology provide complimentary information about students' knowledge of molecular symmetry**
» Robin Morgenstern, Sam Pazicni, Sarah Swineheart, Sarah Fullington

2:27pm **How are students using bonding models in chemistry?: A Knowledge-in-Pieces perspective exploring students' cognitive and epistemic knowledge about bonding**
» Sarah Fullington, Yujian Zhang, Nicole Becker, Sam Pazicni

2:48pm **Coordination class theory as a lens for understanding how undergraduate chemistry students interpret and use graphical representations as predictive tools**
» Ayesha Farheen, Sarah J.R. Hansen, Nicole Becker

3:09pm **Modeling concept use through the coordination class theory: Students' (un-)productive consideration of resonance in organic chemistry tasks**
» Irina Braun, Nicole Graulich

Continued from **Monday, 29 July**

2pm **S25: General Chemistry Lab: Curriculum and Best Practices**
CP-222
Chaired by: Jenine Maeyer

2pm **Introduction (S25)**
» Elinor Soult

2:06pm **Students Mentoring Students: Senior Undergraduate Laboratory Instructors**
» Brian Rempel, Elizabeth McGinitie, James Kariuki, David King, Magrieta Snyman

2:27pm **Assessing Student Lab Skills Using At-Home Technique Quizzes**
» Faith Jacobsen

2:48pm **Improving the Grading Experience: An Analysis of the Factors That Impact the Quality of Rubrics in Chemistry Laboratory Courses**
» Mandy Dark, Dane DeSutter

3:09pm **Curriculum Enhancement and Student Perception of a First-Year Laboratory Course**
» Daria Sokic-Lazic, John Throgmorton

2pm **S34: Activation Barriers to Well-being: Challenges and Approaches to Promoting Well-being for Students, Faculty, and Staff**
CP-287
Chaired by: Kathryn Kloepper

2pm **Introduction (S34)**
» Kathryn Kloepper

2:06pm **Departmental Climate Surveys: An Approach to Enhancing Well-Being and Creating a More Inclusive Community**
» Arielle Mensch, Michael Bertucci, Wendy Hill, Chip Nataro, Rebecca Miller, Daniel Griffith

2:27pm **Emotions Associated with Challenging Teaching Situations: An Analysis of an Often-Ignored Aspect of Instruction**
» Emily Kable, Haleigh Machost, Marilyne Stains

2:48pm **Assessing and Addressing the High Fail Rates Across the Faculty of Science**
» Stephen George-Williams

3:09pm **Safe and Inspiring Learning Environments**
» Samantha Glazier

2pm **S49: Cross-Course or Whole Curriculum Reform Efforts**
CP-297
Chaired by: Douglas Mulford

2pm **Introduction (S49)**
» Elinor Soult

2:06pm **Electrochemical Methods Across the Undergraduate Chemistry Curriculum**
» Ted Pappenfus

2:27pm **Integration of Career Exploration Into a Chemistry Undergraduate Degree Program**
» Clarice Kelleher, Benjamin Turnpenny, Alexsa Silva

2:48pm **An Assessment of STEM Education Research Institute's Contributions in Advancing Innovative Practices**
» Patrick Wilson, Pratibha Varma-Nelson

3:09pm **Fostering Inclusive Teaching Culture: A Case Study of Organizational Change in the Chemistry Department at the University of Iowa**
» Casey Wright, Lindsay Jarratt, Renée Cole, Wayne Jacobson

Continued from **Monday, 29 July**

2pm **S255: Biochemistry Education: Discussions of the Lecture Learning Environment**
JSB-103
Chaired by: Carly Schnoebelen and Keenan Noyes

2pm **Introduction (S255)**
» Elinor Soult

2:06pm **Testing the Ability of Protein-Protein Docking Programs to Model Known Complexes: A Project for the Biochemistry Classroom**
» Renee Bouley, Ryan Yoder, Lauren Frank, Blaise Koehler

2:27pm **Introducing Activities to Enhance Literature Reading Skills in Biochemistry**
» Mary Kopecki

2:48pm **Keeping it Real in Biochemistry**
» Angie Spencer

3:09pm **Panel Discussion (S255)**
» kim woodrum

2pm **S241: ChemEd X Presents Demonstrations to Engage Your Students and Augment Student Learning**
JSB-121
Chaired by: Deanna Cullen

2pm **Introduction (S241)**
» Deanna Cullen

2:06pm **Why We Standardize**
» Amiee Modic

2:27pm **Using Chemical Demonstrations to Highlight Student Understanding**
» Ryan Johnson

2:48pm **Q&A Session (S241)**
» kim woodrum

2pm **S206: "Message In A Bottle": How Do We Reach Generation Z in Class?**
JSB-203
Chaired by: Jim Zubricky

2pm **Introduction (S206)**
» Jim Zubricky

2:06pm **Enhancing Engagement and Critical Thinking: Key Take-aways and Best Practices for Using Pop Culture in Introductory Chemistry Classes**
» Michele Lansigan, Mac Crite

2:27pm **Game On! for General Chemistry: Engaging Students Through Gamified Curriculum Design**
» William Kennerly, Kimberley Frederick

2:48pm **Connecting General Chemistry With Issues that Matter to Students**
» Will Wiebe-Friesen

2pm **S159: Beyond Open Educational Resources (OER): User Experience, Benefits, Challenges and Opportunities**
JSB-213
Chaired by: K Joseph Ho and Jillian Stafford and Diana Habel-Rodriguez

2pm **Introduction (S159)**
» Elinor Soult

2:06pm **OER Adoption and Adaptation: Customizing Resources for Diverse Learning Needs in Chemistry**
» Mary-Kate Finnegan

2:27pm **Using Open Educational Resources in Two Different Lower-Level Chemistry Courses**
» Jeffrey Pribyl

Continued from **Monday, 29 July**

2:48pm **An OER Journey from General Chemistry to Faculty Development**
» Emily Ragan

3:09pm **Panel Discussion (S159)**
» kim woodrum

2pm **S267: Chemistry Education Research: Graduate Student Research Symposium**
JSB-321
Chaired by: Michelle Herridge

2pm **Introduction (S267)**
» Elinor Soult

2:06pm **Metacognition and Organic Chemistry**
» Nghiem Tieu, Oluwatobi Odeleye

2:27pm **An EpiC Quest – Finding epistemic messages in the organic chemistry lecture**
» Elias Heinrich, Nicole Graulich

2:48pm **Beyond Arrows: Organic chemistry students' understanding of electron pushing formalism as scientific modeling**
» Abdul Rauf, Minjung Ryu

3:09pm **Characterizing Students' Epistemic and Operational Atomic Modeling Knowledge**
» Salawat Lateef, Morgan Balabanoff

2pm **Empowering Tomorrow's Molecule Innovators: Design Thinking, Sustainable Solar Cells, and Digital Molecule Making Workshop**
JSB-218
Chaired by: James Planey

Empowering Tomorrow's Molecule Innovators: Design Thinking, Sustainable Solar Cells, and Digital Molecule Making Workshop
» James Planey, Sabrina Abdulla, Nolan Green, Rachel Switzky

2pm **Beyond canceling: Developing authentic proportional reasoning in chemistry**
JSB-208
Chaired by: Mitchell Sweet

Beyond canceling: Developing authentic proportional reasoning in chemistry
» Brenda Royce, Mitchell Sweet

2pm **A Day in the Life of an Academic: Case Studies in Support of Your Diversity, Equity, Inclusion (DEI) and Belonging Work**
JSB-108
Chaired by: Anne Baranger

A Day in the Life of an Academic: Case Studies in Support of Your Diversity, Equity, Inclusion (DEI) and Belonging Work
» Anne Baranger, Stacey Brydges, Tracy McGill

2pm **A "Micro-Scale" Community of Practice for Promoting Student Engagement in General Chemistry: Discuss, Dream, Develop, and Practice**
JSB-114
Chaired by: Jill Ellenbarger

A "Micro-Scale" Community of Practice for Promoting Student Engagement in General Chemistry: Discuss, Dream, Develop, and Practice
» Jill Ellenbarger, Tricia Hahn

2pm **The POGIL Project Workshop: Real-world Context and POGIL**
JSB-231
Chaired by: Daniel King

Continued from **Monday, 29 July**

The POGIL Project Workshop: Real-world Context and POGIL
» Daniel King, Charity Lovitt

2pm **A Chemical Inquiry: Let's Master Equilibrium!**
JSB-243
Chaired by: Greg Dodd

A Chemical Inquiry: Let's Master Equilibrium!
» Greg Dodd

2pm **American Association of Chemistry Teachers (AACT) Resources for AP Chemistry**
JSB-244
Chaired by: Jeramy DeBry

American Association of Chemistry Teachers (AACT) Resources for AP Chemistry
» Jeramy DeBry

2pm **Foundations for Chemistry Education Research & Publications**
JSB-347
Chaired by: Michelle Herridge

Foundations for Chemistry Education Research & Publications
» Michelle Herridge, Chloe Sells

2pm **Teaming up with undergraduate Learning Assistants (LAs) to foster active and inclusive chemistry learning environments**
JSB-357
Chaired by: Ira Caspari-Gnann

Teaming up with undergraduate Learning Assistants (LAs) to foster active and inclusive chemistry learning environments
» Ira Caspari-Gnann, Brittney Morgan, Katy Hosbein

3:30pm **Break**

3:45pm **S229: ELIPSS and Beyond: Celebrating the work and impact of 2023 James Flack Norris Awardees Renée Cole, Juliette Lantz, and Suzanne Ruder**
CP-103
Chaired by: Rick Moog

3:45pm **Introduction (S229)**
» Elinor Soult

3:51pm **Stories and Insights From Five Years of the ELIPSS Project**
» Gil Reynders

4:12pm **MICRO CURE: A Course-Based Undergraduate Research Project Designed to Develop and Assess Student Skills**
» Kimberley Frederick, Maury Howard, Rebecca Hunter, Kelly Neiles, Daniel Scott

4:33pm **Outside the ELIPSS: Using the Rubrics to Promote Career Development**
» Ashley Mahoney

4:54pm **Panel Discussion (S229)**
» kim woodrum

3:45pm **S66: Views from the Classrooms of Award Winning Chemistry Teachers**
CP-111
Chaired by: Deanna Cullen

3:45pm **Introduction (S66)**
» Deanna Cullen

3:51pm **How to Stand Out While Also Fitting In as an Educator**
» Kristen Drury

4:12pm **Improve Engagement with Chemistry-Themed Brain Breaks**
» Melissa Hemling

Continued from **Monday, 29 July**

4:33pm **Developing Process Skills with POGIL**
» Laura Trout

4:54pm **Q&A Session (S66)**
» kim woodrum

3:45pm **S242: Integrating Green Chemistry and Sustainability into Chemistry Education**
CP-114
Chaired by: Loyd Bastin and Kelly Hall

3:45pm **Introduction (S242)**
» Loyd Bastin

3:51pm **Reimagining a Bachelor of Science in Green Chemistry for the future**
» Nicholas Kingsley

4:12pm **Building a green chemistry program**
» Cynthia Woodbridge, Omar Villanueva, Joseph Sloop, Veronica Sublett-Breeden, Kathryn Zimmerman

4:33pm **Exposing Students to Real Green Chemistry Projects: The Green Chemistry Challenge Awards**
» Stephanie Brouet

4:54pm **New Real-World Cases in Green Chemistry for the undergraduate curriculum**
» Jennifer Tripp, Thomas Umile

3:45pm **S133: Active and Inquiry Learning in the Chemistry Teaching Laboratory**
CP-139
Chaired by: Alex Grushow and Melissa Reeves

3:45pm **Introduction (S133)**
» Alex Grushow

3:51pm **Developing and assessing the 'stretchy-pants' lab manual; one-size can fit all!**
» Robin Stoodley

4:12pm **Observing Intermolecular Forces in Surface-Liquid Interactions: A Study of Causal Mechanistic Reasoning using Functionalized Silanes in the Undergraduate Laboratory**
» Robert Milligan, Donald Wink

3:45pm **S214: Active Learning Strategies in Chemistry with Large Enrollment Lectures**
CP-153
Chaired by: Rebecca Loy

3:45pm **Introduction (S214)**
» Rebecca Loy

3:51pm **Gamification to Enhance Student Learning in Large Enrollment Lectures**
» Alexis Courtney

4:12pm **Student Construction of a Flow Chart to Achieve Better Engagement in a Large Enrollment Organic Chemistry Course**
» Rebecca Loy

4:33pm **Incorporating Peer Review as an Active Learning Tool in a Large Enrollment Introductory Biochemistry Course**
» Wen Yi Low, Didem Vardar Ulu

4:54pm **Q&A Session (S214)**
» kim woodrum

3:45pm **S61: Engaging Students in Organic Chemistry**
CP-155
Chaired by: Patricia Kreke and Animesh Aditya

3:45pm **Introduction (S61)**
» Elinor Soult

Continued from **Monday, 29 July**

3:51pm **Helping Pre-Health Students Prepare for the DAT and OAT: Insights into the Design and Evolution of the Organic Chemistry Subsection in the Survey of Natural Sciences**
» Jay Wackerly, Shakena West, Michael Wentzel, Sarah Zingales

4:12pm **Assessing Organic Chemistry Student Perceptions of Learning through Post Exam Survey of Metacognition and Study Habits**
» Sari Paikoff, Rachel Campbell

4:33pm **Illuminating Student Growth: Specifications Grading in Organic Chemistry**
» Michael Evans

4:54pm **Second implementation of Specifications-Based Grading for Organic Chemistry II at a PUI: Modifications from Lessons Learned during the First Implementation**
» Joel Karty

3:45pm **S217: Cultivating Inclusivity and Equity in the Classroom**
CP-179
Chaired by: Alexandra Ormond

3:45pm **Introduction (S217)**
» April French

3:51pm **A Latent Transition Analysis of How Student Attitudes Towards Science Evolve Over a Semester in General Chemistry**
» Oluwatobi Odeleye, Oluwaseun Agunbiade, Adam Garber, Karen Nylund-Gibson

4:12pm **Listening to Students To Transform the General Chemistry Experience**
» Jennifer Collins, Nicole Karn

4:33pm **Good Science Is Inclusive Science: Lessons From Analytical Chemistry**
» Ginevra Clark

4:54pm **Embedding a Course-Based Research Project into an Honors Capstone Course: Our Challenges and Celebrations**
» Amanda Glass, Kristy Wittman Howell

3:45pm **S82: Small Teaching - Making Modest but Powerful Changes to Improve Student Learning**
CP-183
Chaired by: Kevin Stewart

3:45pm **Introduction (S82)**
» Kevin Stewart

3:51pm **Using Spaced Practice with Online Homework: Effect on Performance in Chemistry**
» Blain Mamiya, Hadi Arman, Sarah Oerther

4:12pm **Practicing Researchers' Perceptions of Systems Thinking in Research and Education**
» MaryKay Orgill, Guizella Rocabado

4:33pm **Using Science Practices to Reframe Assessment and Instruction**
» Deborah Herrington, Ryan Sweeder

3:45pm **S175: Reflections from Pandemic Teaching and Beyond: Caring for our Students While Learning to Care for Ourselves and Each Other**
CP-208

3:45pm **Introduction (S175)**
» Clarissa Sorensen-Unruh

3:51pm **Reframing the Chemistry Classroom through equitable care practices and authentic, equity-centered assessment and evaluation**
» Clarissa Sorensen-Unruh

Continued from **Monday, 29 July**

3:45pm **S132: The Theory and Practice of Analytical Chemistry In the Classroom**
CP-211
Chaired by: Matt Queen

3:45pm **Introduction (S132)**
» Matt Queen

3:51pm **Building Student Career Competencies through Peer-Led Instrumental Chemistry**
» Keir Fogarty, Elizabeth McCorquodale

4:12pm **"Your Time Starts Now.": Taskmaster-esque in class activities for Instrumental Lectures**
» Alexander Jacobs

4:33pm **Calibrating Demands on Memory to Enhance Learning in Analytical Chemistry**
» David Thompson

4:54pm **Using Digitized Image Manipulation to Reinforce Excel Skills of both Mathematical Function Creation and Graphing Abilities in Analytical Chemistry**
» Michael Morton, Ian Krouse

3:45pm **S45: 3D Printing in Chemical Education: Engaging Students and Creating Tools for Active Learning**
CP-220
Chaired by: Lon Porter

3:45pm **Introduction (S45)**
» Lon Porter

3:51pm **3D Printable Analytical Instrument Designs for Active Learning: Inexpensive and User-Friendly Kits for Engaging Students in the Chemistry Laboratory**
» Lon Porter

4:12pm **Design and Construction of a 3D Printed Space-Filling Molecular Model Set**
» hannah martin, Brina Nguyen, Jeremy Klosterman

4:33pm **3D Printed Noble Metal Nanoparticle Shapes**
» Anne Bentley, Sara Skrabalak

4:54pm **A Thin Layer Chromatography Prelaboratory Activity Using a 3D-Printed Model to Address Student Misconceptions about Polarity and Intermolecular Forces**
» William Howitz

3:45pm **S47: Beyond Confirmatory Experiences: Teaching in the Chemistry Laboratory**
CP-222
Chaired by: David Styers-Barnett

3:45pm **Introduction (S47)**
» Elinor Soult

3:51pm **A Modified Argument-Driven Inquiry Laboratory Model as a Curriculum Transformation Tool: The Case of the Buffers Experiment**
» Deborah Santos

4:12pm **Community Engagement in General Chemistry: Nutrient Analysis for a Community Garden**
» Yuemei Zhang, Kim Borges, Langdon Martin

4:33pm **Introducing the "Big Questions" of Experimental Science to General Chemistry Lab Students**
» Katie Gesmundo, Veronica Berns

4:54pm **The Role of Materiality in General Chemistry Laboratory Teaching and Research**
» Donald Wink, Robert Milligan, Jim Coombs, Mustafa Demirbuga

3:45pm **S49: Cross-Course or Whole Curriculum Reform Efforts**
CP-297
Chaired by: Douglas Mulford and Nichole Powell

Continued from **Monday, 29 July**

3:45pm **Introduction (S49)**
» Douglas Mulford

3:51pm **Intentional Decreasing of the Chemistry Degree Plan Complexity**
» Stephanie Jones, Eric Eitrheim

4:12pm **Creating a Three-Semester General and Organic Chemistry Curriculum**
» Leslie Knecht, Cesar Gonzalez, Marc Knecht, James Wilson

4:33pm **Shifting the Undergraduate Chemistry Curriculum to Enhance Student Success (SUCCESS)**
» Deirdre Belle-Oudry

4:54pm **Chemistry Unbound at Emory University: Implementation and Assessment Results**
» Douglas Mulford, Tracy McGill, Leah Williams

3:45pm **S255: Biochemistry Education: Discussions of the Lecture Learning Environment**
JSB-103
Chaired by: Carly Schnoebelen and Keenan Noyes

3:45pm **Introduction (S255)**
» Elinor Soult

3:51pm **Making Relevant Connections of Metabolic Processes Utilizing Systems Thinking**
» Corina Brown, Richard Hyslop

4:12pm **Teaching Carbohydrate Metabolism in Biochemistry Using Contemporary Examples of Synthetic and Natural Sweeteners**
» Ann E. Shinnar

4:33pm **Strategies for Engagement in a Biochemistry Lecture**
» Bhavani Balasubramanian

4:54pm **Panel Discussion (S255)**
» kim woodrum

3:45pm **S206: "Message In A Bottle": How Do We Reach Generation Z in Class?**
JSB-203
Chaired by: Jim Zubricky

3:45pm **Introduction (S206)**
» Jim Zubricky

3:51pm **Encouraging student questions: Methods for in-class and out-of-class**
» Kyle McElhoney

4:12pm **Students' Challenge Perceptions Influencing Performance and Persistence Within General Chemistry**
» Dianna Kim, Scott Lewis

4:33pm **Improved Motivation Through Enhanced Engagement in a Principles of Chemistry I class**
» Patricia Todebush, Paula Nolibos

3:45pm **S159: Beyond Open Educational Resources (OER): User Experience, Benefits, Challenges and Opportunities**
JSB-213
Chaired by: K Joseph Ho and Jillian Stafford and Diana Habel-Rodriguez

3:45pm **Introduction (S159)**
» Elinor Soult

3:51pm **LibreTexts: Past, Present and Future**
» Delmar Larsen

Continued from **Monday, 29 July**

4:12pm **The General Principles of ALEKS Product Design and How They Have Evolved**
» Christopher Grayce

4:33pm **Panel Discussion (S159)**
» kim woodrum

3:45pm **S267: Chemistry Education Research: Graduate Student Research Symposium**
JSB-321
Chaired by: Michelle Herridge

3:45pm **Introduction (S267)**
» Elinor Soult

3:51pm **"Benzene is the archetype for aromaticity": Students ideas for defining aromatic, antiaromatic, and nonaromatic compounds**
» Rebecca Chan - Chao, Justin Pratt

4:12pm **Lessons in Symmetry: How inorganic chemistry instructors select and use representations to teach molecular symmetry**
» Shanna Hilborn, Lu Shi, Zoe Edmonson, Sam Pazicni, Maia Popova

4:33pm **Students' Use of Strategic Knowledge While Interrogating the Symmetry of Molecules**
» Robin Morgenstern, Sam Pazicni, Sarah Swineheart, Sarah Fullington

4:54pm **Towards a Model of Cognition for UV/Vis Spectroscopy**
» Haiyan Alfulaiti, Alena Moon

3:45pm **Copper: Two Inquiries to Begin and End the School Year**
JSB-243
Chaired by: Greg Dodd

Copper: Two Inquiries to Begin and End the School Year
» Greg Dodd

3:45pm **Facilitating Lesson Plan Development for Chemistry Outreach Opportunities**
JSB-244
Chaired by: Glenn Gilyot

Facilitating Lesson Plan Development for Chemistry Outreach Opportunities
» Glenn Gilyot, John Himmelberg

6pm **Poster Session 1**
Gatton Student Center, 2nd floor

Hybrid General, Organic and Biochemistry at PSU Altoona
» William Van Der Sluys

Beyond the Classroom: Fostering Holistic Wellness in STEM Education at Saint Louis University
» Jacob Stefanko, Merideth Vieson, Asimra Alagic

Qualitative study on the effect of the STEM Wellness Initiative on undergraduate student wellbeing
» Merideth Vieson, Jacob Stefanko, Asimra Alagic

"What if you were the Chemist?" Transformative Learning in Analytical Chemistry: A Case Study Approach Encouraging Critical Thinking and Soft Skill Development.
» Thushani Herath

An Analytical Chemistry lab cycle comparing methods for quantifying iron in supplement tablets
» Kathryn Davis, Rachael Pickett

Inquisitive lab experiments as a tool for teaching logical thought and scientific writing
» Evan Vanable

Continued from **Monday, 29 July**

Using Undergraduates to Screen Soil for Antibiotic-Producing Species
» Daniel Marous, Celeste Hartings, Andy Dozal

From Research to an Undergraduate Lab Bench: Integrating C-H Activation via Iridium Catalysis into a 4-Hour Inorganic Course
» Joan Roque

Quantitative Analysis at Ashland University: Two Decades of Project-Based Instruction
» Rebecca Corbin, Jeffrey Weidenhamer

Out with the old, in with the new: the impact of Argument Driven Inquiry
» Morgan Polk, Deborah Santos

ADI Chemistry Labs' Effect On Perceived Science Practice, Science Identity, and Nature of Science
» Riona Soosaidas, Deborah Santos

Incorporation of the Extraction and Analysis of Cannabidiol from Hemp Flowers into Organic Chemistry Lab and Undergraduate Research Curricula
» Treasure Sucheck, Faith Butler, Michael Young, Robert Sucheck

A Research-Based Capstone Project for Organic Chemistry Lab
» Brian Woods

An inquiry-based activity for exploring carbocation stability using articulating molecular models.
» Deepali Butani, Michelle Nelson, Joseph Rezents, Patricia Hernandez

Investigating English Learners Engagement and Challenges in a Process Oriented Guided Inquiry Learning (POGIL) Based General Chemistry Classroom.
» Sylvia Zakher, Gregory Rushton, Shaghayegh Fateh, Amy Phelps, O. Theresa Ayangbola, Joshua Reid

A Case Study in Reimagining General Chemistry after a College-wide Curricular Reform: Incorporating Active Learning and Societal Impact into a Large Plenary Course
» Katherine Van Heuvelen

Performance-Based Learning Modules for Enhanced Student Engagement and Success In General Chemistry at SHSU
» Adrian Villalta-Cerdas, Steven Hegwood, Donovan Haines

Chemistry Learning Assistant Program: A Peer Learning Model Curated for Large Enrollment General and Organic Chemistry Classes
» Suzanne Ellenberger, Eman Abdelrahman, Matthew Seivert

Teaching Toxicology Using The Poison Squad and The Poisoner's Handbook.
» James Goll, Brooke Christianson

Addressing the knowledge gap through professional education initiatives for educators to promote the global integration of sustainable chemistry into curricula
» Monica Nyansa, Natalie J. O'Neil, Amy Cannon

Enhancing Native American Student Engagement in Chemistry: A Systems Thinking Approach Integrating Their Tribal Knowledge
» Chun-Hung Wang

Adjusting for Math Preparedness: Redesign of General Chemistry I to Support Student Success
» Ariel E. Vaughn

Project MUSE: Museum Sabbatical Experience for Faculty Teaching at the Arts-Science Interface
» Gregory Smith

Continued from **Monday, 29 July**

When Paul Gauguin arrived at the Studio of the South, did he possess his painting supplies or use Van Gogh's?
» Jeff Fieberg, Gregory Smith

Institutional Transformation for Inclusive Excellence
» Cheryl Bailey, Kathleen Boyle, Jeremy Edison

Peer stories of overcoming challenges in STEM at a Hispanic Serving Institution
» Colleen Conway, Wendy Weaver, Jason Meyler

Creating digitally literate graduates through the curriculum
» Wendy Weaver, Jeremy Edison, Rita Quinones de Magalhaes

Streamlining Program and Course Assessment with the Canvas LMS
» Heather Larson, Kagna Sampson, Victor Waingeh, Jan Fleischer

Evaluation of Teaching and Mentoring in Undergraduate Research Experiences: The Development and Pilot Study of a New BURET Survey Instrument
» Anthony Garcia, Casey Messersmith, Xing Chan, Ernesto Sanchez, Helen Li, Laleh Cote, Elisa Stone, Anne Baranger

Observational Protocols for Peer-Led Team Learning (PLTL)
» Christopher Bauer, Lauren Edwards

Argument-Driven Inquiry in the Organic Chemistry Laboratory: Experiments and Assessment
» Shannon Saluga, Renée Link

Affordable and Available: Exploring OERs in a Chemistry Course for Engineering Majors
» Leah Williams, Beulah Narendrapurapu, Mykhayla Carroll, Sarah Melvin

Remixing and Creating an Interactive OER for an Undergraduate Non-Majors Chemistry Course
» Erin Avram

Purification and Characterization of His-Tagged Fluorescent Proteins in an Undergraduate Biochemistry Lab
» Samantha Wilner

The Better Way to Analyze Michaelis-Menten Data
» Katherine Bichler, Jeffrey Potratz

"CHEMISTRY FRIDAYS" A Program to Foster Community Among Undergraduates in the Chemistry Department
» Jennifer Monahan, Paul J. Bracher, Melissa C. Hopfinger, Michael J. Hankins, Asimra Alagic, Michelle A. Pillers, Natalie R. Schleper

Customizing GPTs for training students in molecular sciences while minimizing hallucinations
» Scott Reed

Colorful Chemistry Magic: Solution Separation Using Science
» Sarah Shoemaker

Cost Effective modeling for visualization of symmetry concepts in Inorganic Chemistry
» Meghan Knapp

Impact of Disciplinary Context on Graphical Reasoning Abilities
» Ariel Adams, Sydney Black, Kathleen Bowe, Brock Couch, Melissa Aikens, Christopher Bauer

Quantitative Exploration of Self-Efficacy and Anxiety Trends Among Undergraduate Chemistry Students
» Cody Beck, Kristen Murphy, Preston Burdett

An Exploration of Students' Mindset Beliefs About Visualization in Biochemistry
» Andrew McVay, Suazette Mooring

Continued from **Monday, 29 July**

Development of a week-long short course for incoming synthetic graduate students.
» Deseree Dufek, Anne Baranger

Post-Lab Wrap-Up: Strengthening engagement through metacognitive practice in organic chemistry lab courses
» Kaitlyn Pasquarella

7pm **Poster Session 2**
Gatton Student Center, 2nd floor

Students' Perception of the Benefits and Challenges of Systems Thinking in Chemistry Education
» Navid Ahmed Sadman, Corina Brown

A Qualitative Investigation of the Ways in Which Undergraduate and Graduate Chemistry Engage in Scientific Practices Within an Authentic Research Context
» Brianna Martinez, Zahilyn Roche Allred, Sonia Miller Underwood

Using Eye-Tracking to Investigate Notetaking and Learning Outcomes in Organic Chemistry Lectures
» Victoria Yu, Annemarie Wolff, Amanda Bongers

Data Source Triangulation for Deeper Insight Into the Relationship Between Power and Mechanistic Reasoning in Organic Chemistry
» Lee Price, Ira Caspari-Gnann

Synthesis and Characterization of Phosphonium Ionic Liquids
» Brennan Schuler, Benjamin Wicker

Exploration of a Tandem Pauson-Khand Reaction for the Synthesis of Polycyclic Aromatic Hydrocarbons
» Scott Van Ornum, Hunter Moore, Fraser Bain, Abigail Larsen

Inquiry on Information Literacy in Florida Postsecondary Chemistry Curricula
» Han Le, Kaitlyn Medina, Matilynn Lam, Christopher Randles

A tale of two surveys: Validation and utilization of two instruments to understand and measure the anxiety and motivation of general chemistry students
» Mira Beranek, Preston Burdett, Cody Beck, Allison Tomczyk, Kristen Murphy

User Experiences with an AI Academic Advising Assistant to Support Students in a Chemistry and Physics Department
» Jana Ibrahim, Maria Langworthy, Mary Nelson, Zhongzhou Chen, Christopher Randles

The Instruction of K-12 Students in Scientific Information Literacy and its Ethical Concerns
» Autumn LeBleu, Matilynn Lam, Christopher Randles

Running an undergraduate research project when no one is an expert: Bootstrapping a new analytical technique
» David Gardner, Sontee Irvin, Skye Kessler

Developing Science Practices Assessment Tasks in Mathematical Thinking for General Chemistry
» Andrew Kivlighn, Norda Stephenson

Variations in Malt Protein Patterns During Fermentation with Ale Brewing Yeast
» Destiny LaFlesh, Ajila Chandran Matheyambath

Distinguishing Cinnamon Species: A Hands-On HPLC Analysis
» Luke Chitwood, Laura Walther

Investigating Student Stress Increases when Exposed to Biochemical Visual Representations by Using Galvanic Skin Response and Working Memory Limitations
» Gavin Winslow, Christopher Randles, Marjan Roshandel, Evan Rodman

Continued from **Monday, 29 July**

Understanding the presence of test anxiety in large enrollment lower division chemistry classes: A survey study.
» Draven Ruiz, Christopher Randles, Marjan Roshandel

Exploring how Test Anxiety Manifests, Impacts and is Perceived by Students Taking Introductory Chemistry Classes
» Noor Alaraj, Gavin Winslow, Draven Ruiz, Marjan Roshandel, Christopher Randles

Changes in Malt Polyphenolics During Fermentation with Ale Brewing Yeast
» Tatum Snyder, Ajila Chandran Matheyambath

Measurement of the Time it Takes to Draw and Interpret Four Representations of Organic Molecules
» Julianna Decker, Emily Diproperzio, Daniel Silverio

Incorporation of computer aided drug design into the biochemistry laboratory
» Mi-Sun Kim

An Interactive, Inorganic Chemistry Python Notebook for Predicting IR and Raman Activity
» Olajumoke Ayeni, Ignacio Migliaro, Mohammad Omary, Molly Atkinson

Time for TD-DFT: An Interactive Colab Tutorial
» Jacob Hirschi, Dayana Bashirova, Evan Lambertson, Tim Zuehlsdorff

Open Source Tools to Facilitate Teaching of Skills Needed by Chemists
» Jonathan Gutow

2025 Cheminformatics OLCC and the InChI OER
» Robert Belford, Sunghwan Kim, Ehren Bucholtz, Jordi Cuadros, Andrew Cornell, Carla_Karen Fortune

IUPAC FAIR Chemistry Cookbook: Recipes to make your Chemical Data FAIRer
» Stuart James Chalk, Leah McEwen, Jordi Cuadros

Partnering a Perovskite Research Project with an Undergraduate Analytical Chemistry Course
» Kristel Forlano, Eliana Bernat, Song Jin, Pamela Doolittle

Progress Towards Identification of Antimicrobial Compounds in Liquidambar styraciflua
» Tracy Terry, Onawa Henson, Anja Dombrowski

Integrating Organic and General Chemistry within a Four-Semester Chemistry Program
» Xavier Prat-Resina, Dihua (Victoria) Xue, Shannon Anderson, Deepali Butani, Olivia Crandell, Tim Doherty, Rachel Doughty, Michelle Nelson

The Mentor's Perspective: Exploring Inclusivity Within the University of Utah's Learning Assistant Program for Biology, Chemistry and Physics Introductory Courses
» Kim Weaver, Mark Jareczek, Hector Torres, Regina Frey

We Think, We Smell, We Remember: The Effect of Smell on Memory for Chemistry Lab Learning
» Michael Marino, Francine Wisnewski, Andre Alexis, Catherine Reilly

The Use of the Science Writing Heuristic to Allow for Students to Gain Greater Conceptual Understanding of Density
» Jim Coombs, Donald Wink

Comparison of Lab Skill Development and Proficiency in Remote and On-Campus Labs
» Josh Marell, Kelly Befus, William Boyle, Sharon Herbelin

Unveiling Students' Quantum Mechanics Understanding: Insights from Knowledge-in-Pieces Methodology:
» Mustafa Demirbuga, Donald Wink

Continued from **Monday, 29 July**

Outcomes and Student Perceptions of Specifications Grading in Organic Chemistry
» Joseph Houck, Christopher Haines

Investigating Students' Perspectives Related to Alternative Grading in STEM
» Tia Kledzik, Elizabeth Vaughan, Nicole James

Alternative Grading in STEM: A Systematic Literature Review
» Harnoor Nagra, Elizabeth Vaughan, Nicole James

Perceived Teacher Support by Students in High School STEM Classrooms
» Tina Lewis

Faculty Perspectives on the Use of Learning Assistants (LAs) in Undergraduate Introductory Science Classes.
» Monsour Zakariyah, Katy Hosbein

Utilizing Real-Word Connections to Enhance Student Attitudes Toward Chemistry
» Rashmi Capece, Hannah Sturtevant

General chemistry students' language fluency in the context of a precipitation reaction
» James Nyachwaya, Krystal Grieger, Tarah Dahl

Engineering-First Chemistry: Tailored Chemistry Curriculum for Engineering Students at the University of Kansas
» Shuai Sun

Changing Assessment Methods for a More Student-Friendly General Chemistry
» Catherine McCusker, Ray Mohseni, Anita Paul

Beyond the Exam: Adding Varied Assessment in General Chemistry for Non-Majors
» Amanda Patrick

Investigating Potential Over-use of Technology in General Chemistry Lecture – Including the Student Viewpoint
» Kristen Funck

Impacts of Pre-Service Teachers' Undergraduate Research Experiences on K-12 STEM Education: A Descriptive Assessment with Qualitative Instruments and Analysis
» Anthony Garcia, Casey Messersmith, Xing Chan, Ernesto Sanchez, Helen Li, Laleh Cote, Elisa Stone, Anne Baranger

Tuesday, 30 July

7am **Breakfast**
Champions Kitchen, inside Gatton Student Center

8am **Workshop and Demo Prep**
JSB-258

8:30am **S229: ELIPSS and Beyond: Celebrating the work and impact of 2023 James Flack Norris Awardees Renée Cole, Juliette Lantz, and Suzanne Ruder**
CP-103
Chaired by: Rick Moog

8:30am **Introduction (S229)**
» April French

8:36am **Federal Science and Technology Workforce Readiness**
» Gail Webster

8:57am **ELIPSS Rubrics Revolutionized Writing POGIL Activities**
» Caryl Fish

Continued from **Tuesday, 30 July**

9:18am **Let's Talk About It! The Role of Collaborative Discourse and Reflection on Students' Reasoning Skills**
» Gwendolyn Lawrie

9:39am **Making Process Visible: Personal Stories of the Evolution and Application of ELIPSS**
» Christopher Bauer

8:30am **S66: Views from the Classrooms of Award Winning Chemistry Teachers**
CP-111
Chaired by: Deanna Cullen

8:30am **Introduction (S66)**
» Deanna Cullen

8:36am **Making Connections that Matter!**
» Laura Slocum

8:57am **Girls in STEM Club**
» Alice Putti

9:18am **Elements of a Thermodynamically Favorable Classroom: Cultivating the Best of Yourself and Your Students**
» Derrick Wood

9:39am **Q&A Session (S66)**
» kim woodrum

8:30am **S242: Integrating Green Chemistry and Sustainability into Chemistry Education**
CP-114
Chaired by: Loyd Bastin and Manisha Nigam

8:30am **Introduction (S242)**
» Loyd Bastin

8:36am **"I did the best I possibly could": Supports and barriers that influence teachers' incorporation of climate science in high school chemistry courses**
» Nicole James, Kieran Wharton

8:57am **Integration of a research-based laboratory project into the General Chemistry II laboratory**
» Yujuan Liu, Joshua Jaison, Kaeryn Cruz, Xisen Wang

9:18am **Going green in general chemistry: Progress and planning**
» Penny Workman

9:39am **Analysis of Climate Change in General Chemistry Textbooks**
» Patrick Wilson, Melissa Weinrich

8:30am **S164: Inside the Division of Chemical Education**
CP-139
Chaired by: Stephanie Ryan and Kimberly Cortes

8:30am **Introduction (S164)**
» Stephanie Ryan

8:36am **The Executive Committee**
» Thomas Bussey

8:57am **Connecting Chemical Educators and Learners to ACS**
» Michael Adams, MaryKay Orgill, Jodi Wesemann

9:18am **Strategic Planning Insights**
» Resa Kelly

9:39am **DivCHED Program Committee**
» Ryan Sweeder

8:30am **S59: Engaging Students & Curriculum Development in Large Classes**
CP-153
Chaired by: Alicia Paterno

Continued from **Tuesday, 30 July**

8:30am **Introduction (S59)**
» Elinor Soult

8:36am **Using OneNote for Multi-Modal Note Delivery, Answering Homework Questions, and Distributing Worksheets for Active Learning in Large Chemistry Lecture Courses.**
» Joshua Owen

8:57am **A Cloze Style Hybrid Lecture Note Manual/Textbook to Enhance Engagement in Large Enrollment General Chemistry Lecture**
» James Peploski

9:18am **Helping Students Build Metacognitive Skills - Assessment Wrappers in a Large First-Semester Organic Chemistry Lecture Course**
» Shawn Miller, Alex Ambrose, Bo Pei, Thomas Joyce

9:39am **Harnessing the Power of Exam Reflections on First Semester General Chemistry Exams**
» Rita Hatfield

8:30am **S83: Developing Mechanistic Reasoning in Organic Chemistry: Research and Practice**
CP-179
Chaired by: Benjamin Burlingham

8:30am **Introduction (S83)**
» April French

8:36am **Behind the Scenes of Mechanistic Reasoning in Organic Chemistry**
» Gautam Bhattacharyya

8:57am **Contrast Between Students' Operative and Epistemic Modeling Knowledge in the Context of Organic Acid-Base Reactions**
» Emmanuel Echeverri, Morgan Balabanoff

9:18am **Undergraduate Organic Chemistry Students' Epistemic Cognition Within a Novel Activity**
» Matthew Breuer, Alena Moon

9:39am **Exploring Patterns in Learner Explanations of Organic Chemistry Reaction Mechanisms Using Text Network Analysis**
» Caroline Crowder, Jeffrey Raker

8:30am **S82: Small Teaching - Making Modest but Powerful Changes to Improve Student Learning**
CP-183
Chaired by: Kevin Stewart

8:30am **Introduction (S82)**
» Elinor Soult

8:36am **Characterization of Shame Experiences in Introductory Organic Chemistry Courses Using the AEQ-OCHEM Instrument**
» Stephanie Frost, Justin Pratt, Jeffrey Raker

8:57am **Implementation of Extra Credit Quizzes in General Chemistry**
» Eric Johnson

9:18am **Unifying Topics in First-Semester General Chemistry: A Semester-Long Project Fostering Connectivity and Understanding**
» Andrew Thomas, Paula Nolibos, Bhawani Regmi

9:39am **Building Thinking Classrooms: Quick Ways to Turn Worksheet into Thinking Tasks**
» Kate Fritts, Courtney Eddleman

8:30am **S239: Exploration of Student-centered Assessments in Chemistry Education**
CP-201
Chaired by: Erin Saitta

Continued from **Tuesday, 30 July**

8:30am **Introduction (S239)**
» April French

8:36am **Investigating Inorganic Chemistry Students' Strategies when Characterizing Symmetry of Geometrical Shapes**
» Alvir Sangha, Joel Beier, Sam Pazicni, Maia Popova

8:57am **Creative Exercises in Inorganic Chemistry**
» Janet Shaw

9:18am **Investigating How Students Cognitively Engage with Feedback Generated Through Peer Review**
» Mary Tess Urbanek, Danny Vinton, Alena Moon

9:39am **An Investigation of General Chemistry Instructors' Purposes of Assessing**
» Ying Wang, Lu Shi, Jherian Mitchell-Jones, Marilyne Stains

8:30am **S233: Computers in Chemical Education**
CP-208
Chaired by: Robert Belford and Tanya Gupta

8:30am **Introduction (S233)**
» Elinor Soult

8:36am **Teaching programming with diversity in mind**
» Marie van Staveren

8:57am **Using a Scroll-Bar Approach in Excel to Simulate Multi-Peak UV/Vis Spectra of Food Dyes**
» Kathryn Thigpen, Ian Krouse, Mai Yin Tsoi

9:18am **Teaching Coding to Undergraduate and Graduate Chemists**
» Benjamin Lear, Christopher Johnson

9:39am **OER chemical education resources advancing Fourth Paradigm science and curriculum integration of semantic and symbiotic web technologies.**
» Robert Belford, Sunghwan Kim, Jordi Cuadros, Ehren Bucholtz

8:30am **S132: The Theory and Practice of Analytical Chemistry In the Classroom**
CP-211
Chaired by: Matt Queen

8:30am **Introduction (S132)**
» Matt Queen

8:36am **Kombucha Katastrophe; A Lesson In Statistics From the Wrong Side of the Key**
» Matt Queen

8:57am **Using the River in Our Backyard for Research in Our Classrooms**
» Kristina Stefaniak

9:18am **From trash to knowledge: Building instrumentation models from recycled materials**
» Illya Medina Velo

9:39am **Flow Injection Analysis as a Platform to Understanding Modern Analytical Instrumentation**
» Ilkka Lahdesmaki

8:30am **S75: Alternative Pathways in General Chemistry: Meeting the Needs of Varied Student Populations**
CP-220
Chaired by: Rebecca Ricciardo and J. Dafhne Aguirre

8:30am **Introduction (S75)**
» Elinor Soult

Continued from **Tuesday, 30 July**

8:36am **Rethinking the Math requirement Timing for General Chemistry: a New Pathway for STEM Students at a Large Public University**
» Rebecca Ricciardo

8:57am **A Slower Paced Two-Semester Sequence for the Completion of General Chemistry I**
» Verna Baron

9:18am **Enhancing Access and Success in STEM through a Three-Semester Approach to General Chemistry**
» J. Dafhne Aguirre

9:39am **Factors Influencing Success in a Traditional General Chemistry Sequence versus a Sequence Spread over Three Semesters**
» Amanda Burkhart, Justin Sims, Robbie Montgomery

8:30am **S47: Beyond Confirmatory Experiences: Teaching in the Chemistry Laboratory**
CP-222
Chaired by: David Styers-Barnett

8:30am **Introduction (S47)**
» Elinor Soult

8:36am **Advanced Organic Chemistry Laboratory Experiment: Synthesis of Biaryls via an ipso-Borylation and Suzuki-Miyaura Coupling**
» Elsa Hinds

8:57am **"Look Mom, I Made Drugs!" A Skills-Based Approach in the Organic Chemistry Laboratory Leading to a Self-Designed, Pharmaceutical Experiment.**
» Bethany Melroe Lehrman

9:18am **Linking Organic Chemistry II, Physical Chemistry, and Biochemistry Laboratories in the Study of the Inhibition of Alkaline Phosphatase by Phenylalanine Derivatives**
» Shelby Lash, Bella Ruozzi, Catherine Boino, Eric Ballard, Benjamin Wilson, Scott Witherow

9:39am **Creating a Collaborative Organic-Inorganic Cross-Course Discovery-type Experiment for Undergraduate Chemistry Students**
» John De Backere, Barb Morra

8:30am **S114: Integrating Humanities into Chemistry Education**
CP-287
Chaired by: Feier Hou and Rebecca Jones

8:30am **Introduction (S114)**
» Feier Hou

8:36am **Engaging Non-Science Majors in Chemistry through Pop Culture**
» Jennifer Fishovitz

8:57am **The Sound of Science**
» Kathryn Rust, Colin Hill

9:18am **"Chemistry on Screen" - An Engaging Approach to Teaching General Chemistry for Non-Science Majors**
» Dana Horgen

9:39am **Fostering Interdisciplinary Connections through High Impact Learning Communities**
» Pinky A McCoy, Leanne White, Jonathan Lopez, Lashay McQueen

8:30am **S60: Promoting Global Collaboration in Chemistry Education: Insights from International Initiatives**
CP-297
Chaired by: Adrian Villalta-Cerdas

8:30am **Introduction (S60)**
» Adrian Villalta-Cerdas

Continued from **Tuesday, 30 July**

8:36am **ACS Recognition for Global Programs in the Chemical Sciences**
» Michelle Brooks, Wasiu Lawal, Lily Raines

8:57am **Green Chemistry Education: Empowering the Global Community**
» Amy Cannon, Jonathon Moir, Monica Nyansa, Natalie J. O'Neil, Juliana Vidal

9:18am **Globalizing STEM students: Building Accessible International Research Experiences**
» Isabelle Lagadic

9:39am **Insights from the IUPAC Global Women's Breakfast: Empowering Women in Science**
» Akiko Nakamura

8:30am **S254: Biochemistry Education: Discussions of the Laboratory Learning Environment**
JSB-103
Chaired by: Sara Johnson and Sharifa Love-Rutledge

8:30am **Introduction (S254)**
» Elinor Soult

8:36am **Folate Biochemistry: A Comprehensive Investigative Learning Opportunity**
» Gopal Periyannan

8:57am **Development of an RNA Biochemistry Lab Module for Undergraduate Education: Integrating Protein Overexpression and Purification Skills With Enzyme Activity Measurements Using the T7 RNA Polymerase System**
» Ruchi Shukla, Nicholas Reiter, Aashay Mardikar, Sahar Alishiri, Sudiksha Pandey, Dulmi Senanayaka

9:18am **Industry or Research? A Biochemistry Lab Curriculum Integrating Chemical Techniques Across Contexts**
» Amanda Hughes

9:39am **Teaching Principles and Optimization of Native Gel Electrophoresis**
» Blair Szymczyna, Didem Vardar Ulu

8:30am **S21: Grading for Growth**
JSB-121
Chaired by: Joan Esson

8:30am **Introduction (S21)**
» Elinor Soult

8:36am **Grading for Growth in a First-Year General Chemistry Course**
» Stacy Stegall

8:57am **Combining Traditional Grading with Mastery Grading in Introductory Chemistry Courses**
» Kathryn Davis, Kyle Watson, Jeff Osborne

9:18am **Specifications Grading in the General Chemistry Laboratory: Do All Students Benefit From It?**
» Lisa Morkowchuk, Brandon Yik, Marilyne Stains, Lindsay Wheeler, Josipa Roksa

9:39am **Characterizing Implementations of Specifications Grading Through an Analysis of Syllabi**
» Haleigh Machost, Brandon Yik, Marilyne Stains

8:30am **S188 -**
S188 Process Oriented Guided Inquiry Learning (POGIL) in the Classroom and laboratory
JSB-203
Chaired by: Marty Perry and Laura Parmentier

8:30am **Introduction (S188)**
» Marty Perry

Continued from **Tuesday, 30 July**

8:36am **Successes and Challenges of Implementing and Assessing POGIL-like Activities in the General Chemistry Sequence**
» Brett Cagg

8:57am **Decreasing DFWs in General Chemistry: Potential Synergistic Effects of POGIL in Conjunction with Various Pedagogies**
» Jessica Fautch, Gregory Foy, Rachel Foy

9:18am **Exploring the Nexus of Self-Efficacy and Process-Oriented Guided Inquiry Learning (POGIL) in a Hispanic-Serving Institution: Insights and Implications**
» Maryanne Long, Paulette Vincent-Ruz

8:30am **S267: Chemistry Education Research: Graduate Student Research Symposium**
JSB-321
Chaired by: Michelle Herridge

8:30am **Introduction (S267)**
» Elinor Soult

8:36am **Analysis of Academic Integrity Statements in Chemistry Course Syllabi**
» Slade McAfee, Jon-Marc Rodriguez

8:57am **A Comparative Case Study of Instructor Perspectives of Biochemistry Courses Taught in Different Departments at the Same Institution**
» Kodi Nix, Thomas Bussey, Sonia Miller Underwood

9:18am **Elements of Culturally Relevant Instruction: An instructional framework for college chemistry instructors**
» Destinee Cooper, Matthew Voigt

8:30am **A Tale of Two Platforms: Using Achieve and Smart Worksheets in Labs**
JSB-218
Chaired by: Jim Zubricky

A Tale of Two Platforms: Using Achieve and Smart Worksheets in Labs
» Jim Zubricky, Bill Heslop, Christian Perlee, M. Naeem Shahid, April French

8:30am **Making the Most of the Syllabus: Centering Learning from the Start**
JSB-108
Chaired by: Julie Donnelly

Making the Most of the Syllabus: Centering Learning from the Start
» Julie Donnelly, Kurt Winkelmann

8:30am **An ACS Exams committee experience: Writing and editing exam items as well as considering partial credit assignment of incorrect responses in the writing process**
JSB-114
Chaired by: Kristen Murphy

An ACS Exams committee experience: Writing and editing exam items as well as considering partial credit assignment of incorrect responses in the writing process
» Kristen Murphy, David Schreurs, Jaclyn Trate, Sachin Nedungadi, Olga Michels, Chrystal Bruce, Melissa Reeves, Patricia Kreke, Thomas Pentecost

8:30am **LibreTexts: Building your OER textbook for your class**
JSB-231
Chaired by: Joshua Halpern

LibreTexts: Building your OER textbook for your class
» Joshua Halpern, Delmar Larsen

Continued from **Tuesday, 30 July**

8:30am **The POGIL Project Workshop: Introduction to POGIL Labs**
JSB-243
Chaired by: Michael Garoutte

The POGIL Project Workshop: Introduction to POGIL Labs
» Michael Garoutte, Craig Teague

8:30am **Art and Archaeology-Inspired Chemistry Labs and Activities**
JSB-244
Chaired by: Kristin Labby

Art and Archaeology-Inspired Chemistry Labs and Activities
» Kristin Labby, Kevin Braun, Annelise Gorensek-Benitez

8:30am **Real Intelligence (Still) Beats Artificial Intelligence: Engaging Students with Inquisitive Molecular Modeling**
JSB-337
Chaired by: Jurgen Schnitker

Real Intelligence (Still) Beats Artificial Intelligence: Engaging Students with Inquisitive Molecular Modeling
» Jurgen Schnitker

8:30am **Summative rubric evaluation for the assessment of mechanism questions in the second-year organic chemistry course sequence**
JSB-347
Chaired by: Sarah Zingales

Summative rubric evaluation for the assessment of mechanism questions in the second-year organic chemistry course sequence
» Jay Wackerly, Michael Wentzel, Sarah Zingales

8:30am **Backward-Design Your Laboratory Course**
JSB-357
Chaired by: Annette Neuman

Backward-Design Your Laboratory Course
» Annette Neuman, Brenda Harmon

10am **Break**

10:15am **S229: ELIPSS and Beyond: Celebrating the work and impact of 2023 James Flack Norris Awardees Renée Cole, Juliette Lantz, and Suzanne Ruder**
CP-103
Chaired by: Rick Moog

10:15am **Introduction (S229)**
» April French

10:21am **A Celebration of Excellence and Impact**
» Rick Moog

10:37am **Going Beyond Content Knowledge: Aligning Classroom Activities and Assessment to Promote Transferable Skill Development**
» Juliette Lantz, Renée Cole, Suzanne Ruder

11:23am **Panel Discussion (S229)**
» kim woodrum

10:15am **S66: Views from the Classrooms of Award Winning Chemistry Teachers**
CP-111
Chaired by: Deanna Cullen

10:15am **Introduction (S66)**
» Deanna Cullen

Continued from **Tuesday, 30 July**

10:21am **ACS National and Regional Awards for High School Chemistry Teaching**
» Adam Boyd

10:42am **Increasing Student Engagement in the Chemistry Classroom**
» Stacey Balbach

11:03am **Making Chemistry Relevant and Yours!**
» Sherri Rukes

11:24am **Q&A Session (S66)**
» kim woodrum

10:15am **S242: Integrating Green Chemistry and Sustainability into Chemistry Education**
CP-114
Chaired by: Loyd Bastin and John De Backere

10:15am **Introduction (S242)**
» Loyd Bastin

10:21am **Perspectives of Undergraduate Chemistry Instructors on Teaching Climate Change**
» Patrick Wilson, Melissa Weinrich

10:42am **Teaching greener analytical chemistry: Some ideas & tips**
» Andy Dicks

11:03am **Advancing Green Chemistry Education**
» Manisha Nigam

11:24am **Q&A Session (S242)**
» kim woodrum

10:15am **S164: Inside the Division of Chemical Education**
CP-139
Chaired by: Stephanie Ryan and Thomas Bussey

10:15am **Introduction (S164)**
» Stephanie Ryan

10:21am **Bylaws: What Are They Good for? (Say It Again ...)**
» Daniel King

10:42am **Living Large**
» Amiee Modic

11:03am **Navigating Leadership: Insights from Chairing the Division of Chemical Education**
» Resa Kelly

11:24am **The Leadership Launchpad: All About the Early Career Chemistry Education Scholars Committee**
» Olivia Crandell

10:15am **S59: Engaging Students & Curriculum Development in Large Classes**
CP-153
Chaired by: Alicia Paterno

10:15am **Introduction (S59)**
» Elinor Soult

10:21am **The Middle Ground: An "Atoms to Reactions" Approach to General Chemistry**
» Kevin Revell

10:42am **A Study on Student Recall of the Elements in the Periodic Table in a First-Semester General Chemistry Course**
» Stephen Testa

Continued from **Tuesday, 30 July**

11:03am **Curriculum Redesign for Inclusivity in a High-Enrollment General Chemistry Sequence**
» Shaunna McLeod, Hannah Lant

11:24am **Investigating Student Engagement in Clicker Questions Using the Activity Engagement Survey (AcES)**
» Pallavi Nayyar, Scott Lewis

10:15am **S83: Developing Mechanistic Reasoning in Organic Chemistry: Research and Practice**
CP-179
Chaired by: Benjamin Burlingham

10:15am **Introduction (S83)**
» April French

10:21am **Analyzing and Fostering Students' Argumentation Patterns of Alternative Reaction Pathways in Organic Chemistry**
» Leonie Lieber, Krenare Ibraj, Ira Caspari-Gnann, Nicole Graulich

10:42am **Mapping Chemistry Students' Learning Paths When Reasoning About Reaction Mechanisms**
» Paul Martin, Brandon Yik, Benjamin Burlingham, Nicole Graulich

11:03am **Exploring Adaptive Support to Derive Guidelines for an Intelligent Tutoring System for Problem-Solving in Organic Chemistry**
» Marc Rodemer, Gyde Asmussen, Sascha Bernholt

11:24am **Designing a Formative Assessment Task to Support Student Construction of a Mechanistic Explanation for a Complex Phenomenon.**
» Kriti Seth, Elizabeth Day, Melanie Cooper

10:15am **S158: Designing and Facilitating Chemistry Learning Environments Anchored in Phenomena**
CP-183
Chaired by: Adam Schafer and Lindsay Wells

10:15am **Introduction (S158)**
» April French

10:21am **Building Community By Crafting Learning Environments With Shared Accountability**
» Adam Schafer, Emily Adams, Lindsay Wells, Jennifer Timmer

10:42am **Using CER to Develop Models Explaining Chemical Phenomenon**
» Jennifer Timmer

11:03am **Chemistry & ELA Cross Curricular Projects & Instructional Strategies**
» Kevin Cram

11:24am **Web-based simulations built with Unity**
» Steven Sogo

10:15am **S239: Exploration of Student-centered Assessments in Chemistry Education**
CP-201
Chaired by: Erin Saitta

10:15am **Introduction (S239)**
» April French

10:21am **Creative Final Projects in Biochemistry 'Inspired by Enzymes'**
» Melissa Mullen Davis

10:42am **Using Creative Exercises to Apply Prior Knowledge and Improve Critical Thinking in Biochemistry Learning**
» Yulia Gerasimova, Samantha Partlow, Dylan Leemok, Jonathan Caranto, Dmitry Kolpashchikov, Christopher Nix, Erin Saitta

Continued from **Tuesday, 30 July**

11:03am **Enhancing student success and linking of chemistry concepts through a learner-centered assessment implemented in introductory chemistry**
» Li Ye, Alex Gilewski

11:24am **Making Connections: Designing Final Projects Around Student's Communities**
» Ariel E. Vaughn

10:15am **S233: Computers in Chemical Education**
CP-208
Chaired by: Robert Belford and Jonathan Gutow

10:15am **Introduction (S233)**
» Elinor Soult

10:21am **Not all flipped class resources are created equally: improving out-of-class student learning with question-embedded videos (QEVs)**
» Binyomin Abrams

10:42am **The Use of AI to Grade Open-Ended Questions in a Large Enrollment Lab Course**
» John Wiginton, Olivia Harwick, Jason Pearson

11:03am **Breaking the "Golden Handcuffs" that bind courses to Commercial Homework platforms with the ADAPT Open Homework and Assessment Platform**
» Delmar Larsen

11:24am **Development of an open-access, community-driven, peer-reviewed library of green chemistry educational materials in Drupal 10: The Green Chemistry Teaching and Learning Community (GCTLC)**
» Jonathon Moir, Nimrat Obhi, Sarah Prescott, Amy Cannon

10:15am **S132: The Theory and Practice of Analytical Chemistry In the Classroom**
CP-211
Chaired by: Matt Queen

10:15am **Introduction (S132)**
» Matt Queen

10:21am **Incrementally Building a Toolkit of Chemical Analysis Skills though Short Projects**
» Erin Wilson

10:42am **Classroom simulations for teaching analytical chemistry concepts**
» Mark Jensen

11:03am **Analytical chemistry is the future! Preparing students to address global challenges.**
» Ginevra Clark

10:15am **S75: Alternative Pathways in General Chemistry: Meeting the Needs of Varied Student Populations**
CP-220
Chaired by: Rebecca Ricciardo

10:15am **Introduction (S75)**
» Elinor Soult

10:21am **The STEMentors Program: Promoting Community Building and Academic Readiness through Peer-Learning**
» Josie Nardo

10:42am **MAX CHEM: a Sidecar Course to Support Student Success in General Chemistry 1**
» Daniel Blumling, Ashleigh Baber

11:03am **Creating Social Belonging and Connectedness in an Online Forensic Science Course**
» Gina Londino-Smolar

Continued from **Tuesday, 30 July**

11:24am **Group Discussion (S75)**
» kim woodrum

10:15am **S47: Beyond Confirmatory Experiences: Teaching in the Chemistry Laboratory**
CP-222
Chaired by: David Styers-Barnett

10:15am **Introduction (S47)**
» Elinor Soult

10:21am **A Laboratory Predicated on Non-Confirmatory Data: Using Surface Water Quality Analyses as a Framework**
» Neil A. Law, Barbara L. Brabetz

10:42am **Linking Current Ecological Challenges to a Non-science Major Chemistry Laboratory**
» Jeffrey Pribyl

11:03am **Investigation of Bath Bomb Kinetics as an Inquiry or Research Experience for Chemistry Students at Different Levels**
» Jennifer Mihalick

11:24am **What's on my Surfaces? Design and Implementation of an Indoor Surface Films CURE**
» Andrea Van Wyk, Lauren Andrews, Alexandria Julius, Binaya Shrestha, Scott Shaw, Renée Cole

10:15am **S114: Integrating Humanities into Chemistry Education**
CP-287
Chaired by: Feier Hou and Rebecca Jones

10:15am **Introduction (S114)**
» Feier Hou

10:21am **Creative-Writing and Art Projects in General and Inorganic Chemistry Classes**
» Feier Hou

10:42am **Story of Colorants: Creative Writing as a Way to Convey Personal Investigations into Chemistry**
» Patricia Jue

11:03am **Exploring the Overlap of Chemistry, Literature, and Language in an Upper-Level Lecture Course**
» Carrigan Hayes

11:24am **Q&A (S114)**
» Feier Hou

10:15am **S60: Promoting Global Collaboration in Chemistry Education: Insights from International Initiatives**
CP-297
Chaired by: Adrian Villalta-Cerdas

10:15am **Introduction (S60)**
» Adrian Villalta-Cerdas

10:21am **Professional Development for Chemistry Teachers in the USA and the Balkan Countries on Solution Energetics**
» Thomas Greenbowe, Marian DeWane

10:42am **International Collaborations Provide Transformative Experiences in a "Chemistry in Art" Study Abroad Course in France**
» Jeff Fieberg

11:03am **Chemical Imagination and Innovation - A US-Hungary Study Abroad Collaboration**
» David Thompson, Ilona Petrikovics

11:24am **On the Impact of Virtual Laboratory Simulations During and Post COVID-19 in South African Chemistry Departments**
» Dudley Shallcross, Bill Heslop, Iain Thistlethwaite

Continued from **Tuesday, 30 July**

10:15am **S254: Biochemistry Education: Discussions of the Laboratory Learning Environment**
JSB-103
Chaired by: Sara Johnson and Sharifa Love-Rutledge

10:15am **Introduction (S254)**
» Elinor Soult

10:21am **Shaping Learning in an Upper Division Biochemistry Laboratory Using Fink's Taxonomy**
» Satya Dulam, Juliana Lessa Sacoman

10:42am **The Summer Science Program in Biochemistry: Lessons Learned Over Five Years at Indiana University**
» Jessica Hollenbeck, Martha Oakley, Amy Barr, Mark Hall

11:03am **Using Mastery Grading in a Biochemistry Lab Class Based on Modularly Designed Experiments**
» Kyle Willian

11:24am **A Biochemistry Lab Course-Based Undergraduate Research Experience in Assembling Biodegradation Pathways for enviPath**
» Jeff Osborne

10:15am **S21: Grading for Growth**
JSB-121
Chaired by: Joan Esson

10:15am **Introduction (S21)**
» Elinor Soult

10:21am **Enhancing Student Success in Organic Chemistry Through Specifications Grading**
» Samuel Touchette, Joseph Simard

10:42am **Communicating Student Progress in Courses with Alternative Grading Systems**
» Kyle Broaders

11:03am **Standards-Based Grading in Analytical Chemistry**
» Joan Esson

10:15am **S124: George R. Hague Memorial AP/IB Chemistry Symposium**
JSB-203
Chaired by: Alice Putti

10:15am **Introduction (S124)**
» Elinor Soult

10:21am **Harnessing Social Media for Bite Size Review**
» Nora Walsh

10:42am **Using POGIL to Target Common Challenges and Misconceptions in AP Chemistry**
» Paula Butler

11:03am **Teaching acid/base chemistry with POGIL**
» Laura Trout

11:24am **Improving Your Skills as an Item Writer**
» Michael Farabaugh

10:15am **S37: Chemistry Education Research: Undergraduate Student Research Symposium**
JSB-213
Chaired by: Julie Donnelly and Nicole Lapeyrouse

10:15am **Introduction (S37)**
» Elinor Soult

10:21am **The STEM Pipeline Metaphor as an Agent of Dehumanization and Marginalization**
» Claudia Trevino, Paulette Vincent-Ruz

Continued from **Tuesday, 30 July**

10:42am **Student Reflections of Their Sense of Belonging in General Chemistry Courses**
» Zamira Torres, Keila Muller, Camila Senespleda, Tamra Legron-Rodriguez

11:03am **Exploring Students' Professional Identity to Their STEM Major**
» Jackson Ellis, Cameron Bechard, Abigail Castillo, Tamra Legron-Rodriguez, Nicole Lapeyrouse

11:24am **Analyzing Potential Factors That can Impact Students' Professional Identity in Forensic Science**
» Abigail Castillo, Cameron Bechard, Tamra Legron-Rodriguez, Nicole Lapeyrouse

10:15am **S267: Chemistry Education Research: Graduate Student Research Symposium**
JSB-321
Chaired by: Michelle Herridge

10:15am **Introduction (S267)**
» Elinor Soult

10:21am **(Dis)Ability and Accommodation: Exploring the accessibility of general and organic chemistry course design**
» Samantha Chrin, Josie Nardo

10:42am **STEM Identity: How students' see themselves as future STEM graduates**
» Cameron Bechard, Abigail Castillo, Jackson Ellis, Tamra Legron-Rodriguez, Nicole Lapeyrouse

11:03am **Marginalized Students' Sense of Belonging in Organic Chemistry Practices**
» Anais Nevarez, Ira Caspari-Gnann

11:24am **Understanding the Concealable Stigmatized Identities of LGBTQ+ Students in Undergraduate Chemistry**
» Johnathan Chisam, Josie Nardo

10:15am **Beyond "verbatim" transcription: Using techniques from applied linguistics to enhance the analysis of classroom talk in chemistry education research**
JSB-108
Chaired by: Alissa Hartig

Beyond "verbatim" transcription: Using techniques from applied linguistics to enhance the analysis of classroom talk in chemistry education research
» Alissa Hartig, Safaa El-Mansy, Jack Barbera

11:45am **Lunch**

2pm **S167: Playing Fun-tastic Games in Chemistry**
CP-103
Chaired by: theresa gaines

2pm **Introduction (S167)**
» theresa gaines

2:06pm **It's In The Syllabus! A First-Day Syllabus Scavenger Hunt to Gamify A Boring Task**
» Rachel Doughty

2:27pm **"CLUES, CHEMISTRY, AND NOBEL LAUREATES" GAME! An Engaging Peer-Learning Chemical Education Review Game for Undergraduate Health Sciences Students**
» Angela Mahaffey

2:48pm **NanoAdventure: Development and Assessment of a Text-Based Adventure Game in English, Spanish, and Chinese for Communicating about Nanoscience**
» Natalie Hudson-Smith, Wilanyi Alvarez-Reyes, Xiaoxiao Yao, Jiayi He, Rebeca Rodriguez, Stephanie Mitchell, Mahmoud Matar Abed, Eleni Spanolios, Miriam Krause, Christy Haynes

3:09pm **Chemistry and Chaos - A Chemistry Role-Playing Game**
» James Mendez

Continued from **Tuesday, 30 July**

2pm **S230: Honoring Laura Trout: Making POGIL at the High School Level a Reality**
CP-111
Chaired by: Rick Moog

2pm **Introduction (S230)**
» Rick Moog

2:06pm **Crafting Powerful POGIL Models**
» Melissa Hemling

2:27pm **Using POGIL to Secure Strong Outcomes Among Diverse Academically Talented High School Students**
» Michael Bruno

2:48pm **College vs. High School POGIL Facilitation - The Blowback, the Buy-In, and the Benefits!**
» Rachel Foy

3:09pm **Professional Development Extraordinaire: From a Workshop in Wabash to a Career using POGIL**
» Paula Butler

2pm **S242: Integrating Green Chemistry and Sustainability into Chemistry Education**
CP-114
Chaired by: Loyd Bastin and Matthew Tracey

2pm **Introduction (S242)**
» Loyd Bastin

2:06pm **An Inquiry Based Friedel-Crafts Acylation Experiment, Utilizing a Greener Approach**
» Verna Baron, Charles Ketron

2:27pm **Making Teaching Organic Chemistry Laboratory Courses Safer, More Sustainable, and With Holistic Learning by Employing Greener Protocols.**
» Marlius Castillo

2:48pm **Going Green in Organic Chemistry: Optimizing an Aqueous Suzuki Reaction**
» Andy Dicks, Alicia Battaglia

3:09pm **Green Oxidation of Alcohols Using an Oxoammonium Salt**
» John Milligan

2pm **S164: Inside the Division of Chemical Education**
CP-139
Chaired by: Stephanie Ryan and Thomas Bussey

2pm **Introduction (S164)**
» Stephanie Ryan

2:06pm **Board of Publications - Journal of Chemical Education**
» Deborah Herrington, Maria Oliver-Hoyo

2:27pm **JChemEd 101: Past, Present and Future of Publishing Educational Innovation**
» Thomas Holme

2:48pm **Chemical Education Xchange (ChemEd X)**
» Deanna Cullen, Jon Holmes

3:09pm **Long-Range Planning Committee**
» William Donovan

2pm **S59: Engaging Students & Curriculum Development in Large Classes**
CP-153
Chaired by: Alicia Paterno

2pm **Introduction (S59)**
» Elinor Soult

Continued from **Tuesday, 30 July**

2:06pm **High Success in Student Engagement and Retention in General Chemistry for Science yet Non-Chem Majors**
» Benjamin Turnpenny, Steven Murphy, Clarice Kelleher, Alexsa Silva

2:27pm **Stemble: Enhancing Chemistry Education With AI for Effective Large Class Management**
» Paul Seward

2:48pm **Reinventing Recitation**
» Erin Peters

3:09pm **Insights From Piloting (REALLY) Large Recitation Sessions in General Chemistry**
» Megan Bucks, Daniel Waddell, Soumalya Sinha, Artur Huseinov

2pm **S298: Present and Future Directions in Organic Chemistry Laboratory Courses**
CP-155
Chaired by: Noel Paul

2pm **Introduction (S298)**
» Noel Paul

2:06pm **Organic Lab Skills Practical: A Checkpoint for Success**
» Erica Merriett

2:27pm **New Bromination Reactions for the Organic Chemistry Laboratory**
» Michael Korn, Alex Glase, Claudia Kennedy

2:48pm **A Multistep Synthesis Incorporating Polymers for the Organic Chemistry Lab**
» Jonathan Moerdyk

3:09pm **Scaling the Synthesis of a COVID-19 Antiviral Drug Down From the Process Laboratory to the Organic Chemistry Teaching Laboratory**
» Pamela Lundin, Andrew Wommack, Aaliyah Holloway, Kaitlyn Stallings

2pm **S83: Developing Mechanistic Reasoning in Organic Chemistry: Research and Practice**
CP-179
Chaired by: Benjamin Burlingham

2pm **Introduction (S83)**
» April French

2:06pm **Emphasizing Explanations Every Day: Investigating Student Engagement With Explanation in Organic Chemistry**
» Olivia Crandell, Michelle Nelson

2:27pm **Causal Reasoning as Decoration or Driver for Decision-Making in Organic Mechanism Practice**
» Ira Caspari-Gnann, Rebecca Scheck, Lee Price, Julia Eckhard

2:48pm **Bringing Real Data Into the Organic Chemistry Lecture: Exercises**
» Brian Esselman, Ryan Stowe, Mary Beth Anzovino, Kimberly DeGlopper

3:09pm **Bringing Real Data Into the Organic Chemistry Lecture: Assessments**
» Mary Beth Anzovino, Brian Esselman, Ryan Stowe, Kimberly DeGlopper

2pm **S158: Designing and Facilitating Chemistry Learning Environments Anchored in Phenomena**
CP-183
Chaired by: Adam Schafer

2pm **Introduction (S158)**
» April French

Continued from **Tuesday, 30 July**

2:06pm **Making Space for Chemistry Student Agency During Consensus Building**
» Stacey Balbach

2:27pm **Construct and critique: Changing what it means to "know Chemistry" on tests and exams.**
» Aaron Burg, Katilyn Schrader

2:48pm **Assessments as sites for framing and communicating teachers' epistemic learning goals**
» Lindsay Wells

3:09pm **Mapping the Epistemic Environment of Two Phenomena-Based High School Chemistry Classrooms**
» Brie Bradshaw, Ryan Stowe

2pm **S239: Exploration of Student-centered Assessments in Chemistry Education**
CP-201
Chaired by: Erin Saitta

2pm **Introduction (S239)**
» April French

2:06pm **Connecting with Science: An Evaluation of the Types of Real-World Chemistry Applications Identified by General Chemistry I Students and the Connection to Course Material**
» Natalie Leon, Ariel E. Vaughn

2:27pm **Fostering Inclusivity and Engagement through Student-Centered Assessments in Organic Chemistry II**
» Jocelyn Lanorio

2:48pm **Utilizing Scientific Posters as a means for Formative and Summative Assessment in Major and non-Major Courses**
» Daniel King

2pm **S233: Computers in Chemical Education**
CP-208
Chaired by: Robert Belford

2pm **Introduction (S233)**
» Elinor Soult

2:06pm **Complementing Computer-Based Learning Activities with Physical Experiences**
» Joel Beier, Martina Rau, Sam Pazicni

2:27pm **The chemistry textbook of the future, today.**
» Joshua Halpern

2:48pm **Using molecular computation and visualization to teach chemistry**
» Kevin Range

3:09pm **Wolfram Notebooks for Chemical Education**
» John McNally

2pm **S98: Effective Approaches to Inclusive Chemistry Education**
CP-211
Chaired by: Kate Ries

2pm **Introduction (S98)**
» April French

2:06pm **Fostering a sense of belonging on the Green Chemistry Teaching and Learning Community (GCTLC) online platform**
» Nimrat Obhi, Jonathon Moir, Andrea Oseolorun, Sarah Prescott, Amy Cannon

2:27pm **Investigating the Significance of Mental Visualisation Ability on Chemistry Students' Representational Competencies and Visuospatial Abilities**
» Lauren Baade, Gwendolyn Lawrie, Effie Kartsonaki, Hassan Khosravi

Continued from **Tuesday, 30 July**

2:48pm **A Second Glance – An Eye-Gaze-Augmented Retrospective to Stimulate Reflection on Problem-Solving in Organic Chemistry**
» Axel Langner, Nicole Graulich

3:09pm **Using Anonymous Feedback to Create a Dynamic and Responsive Classroom**
» Stephanie Knezz

2pm **S136: Data-driven Approaches for Using Interactive Online Courseware to Improve Learning and Increase Equity**
CP-220
Chaired by: Mark Blaser

2pm **Introduction (S136)**
» April French

2:06pm **Applying Learning Engineering to the Design of Equitable Online Courseware for Introductory Chemistry**
» Sandra Raysor, Ariel Anbar, Norman Bier, David Yaron, Mark Blaser, Ken Koedinger, Kim Larson, Kathryn Rico, Melissa Renfrey, Miasha Brunkhorst, Melanie Narish, Mark Landry, Robert Hunt, Julia Lehman, Shree Lakshmi Rao

2:27pm **Learning about Learning from Millions of Student Interactions with Online Courseware**
» David Yaron, Mark Blaser, Elizabeth Mclaughlin, Hui Cheng, Sandra Raysor, Kenneth Koedinger

2:48pm **Insights into Improving Outcomes by Monitoring the Learning Process in Hybrid General Chemistry Courses**
» Mark Blaser, David Yaron, Kenneth Koedinger, Elizabeth Mclaughlin, Hui Cheng, Sandra Raysor

3:09pm **Preliminary Implementation of a Mastery Grading System in a Large Enrollment General Chemistry Course: Impact on Overall Outcomes and Equity Gaps**
» Joshua Hartman, Jack Eichler

2pm **S47: Beyond Confirmatory Experiences: Teaching in the Chemistry Laboratory**
CP-222
Chaired by: David Styers-Barnett

2pm **Introduction (S47)**
» Elinor Soult

2:06pm **Arrows Point the Way: Titrating Inside of a Flowchart**
» Joseph Lomax

2:27pm **Shedding Light on Perovskites: A Project Lab for Illuminating Analytical Chemistry Principles**
» Pamela Doolittle, Kristel Forlano, Eliana Bernat, Song Jin, Amanda Buchberger

2:48pm **Short Research Projects in the Analytical Laboratory**
» Chris Dahm

3:09pm **A Research-based Instrumental Analysis Lab with an Industry Collaboration**
» Keith Marek, Katie Peterson, Justin Schiro

2pm **S114: Integrating Humanities into Chemistry Education**
CP-287
Chaired by: Feier Hou

2pm **Introduction (S114)**
» Feier Hou

2:06pm **A Change of Pace: Offering Food Chemistry as an Online, Summer Course**
» Heather Clontz

2:27pm **Bridging Disciplines: The Chemistry of Chocolate Project for Non-Science Majors**
» Bozena Widanski

Continued from **Tuesday, 30 July**

2:48pm **Interdisciplinary Perspectives of Culinary Chemistry**
» Melissa Mullen Davis

3:09pm **Cuisine, Chemistry and Culture: An Interdisciplinary Course Connecting Anthropology and Chemistry through Food**
» Racquel DeCicco, Celeste Gagnon

2pm S228: Multilingual Learners in Chemistry
CP-297
Chaired by: Julia Chamberlain

2pm **Introduction (S228)**
» Julia Chamberlain

2:06pm **Chemistry for All: Developing linguistically accessible assessment items in general chemistry**
» Eshani Lee, Erin Bock, Anna Eunji Kim, Jack Barbera

2:27pm **Small Group Conversations in a POGIL-Based Class: How English Learners Engage in a Joint Knowledge Construction Process to Reach a Shared Understanding**
» Gregory Rushton, Shaghayegh Fateh, Amy Phelps

2:48pm **Enhancing Bilingual Student Engagement in STEM: Insights from POGIL at a Hispanic-Serving Institution**
» Taiwo Adesunloye, Paulette Vincent-Ruz

3:09pm **Engaging with Multilingual Chemistry Learners**
» Julia Chamberlain

2pm S253: Biochemistry Education in Honor of Vicky Minderhout
JSB-103
Chaired by: Tracey Murray

2pm **Introduction (S253)**
» Elinor Soult

2:06pm **Vicky Minderhout: Teacher, Community Builder, Change Agent**
» Jennifer Loertscher, Tracey Murray

2:27pm **Comprehensive Scheme to Integrate Visualization in Undergraduate Biochemistry**
» Sunil Malapati

2:48pm **Growing and learning together in community: Celebrating Vicky Minderhout's impact on community building in biochemistry education**
» Stephanie Feola

3:09pm **Use of a concept inventory to assess long-term conceptual change in Biochemistry**
» Tracey Murray, Rodney Austin

2pm S174: Disrupting Grading
JSB-121
Chaired by: Clarissa Sorensen-Unruh

2pm **Introduction (S174)**
» April French

2:06pm **Alternative Grading Considerations in Diverse Courses**
» Kristi Closser

2:27pm **Grading: Seeking a Balance**
» Langdon Martin

2:48pm **Success in Their Hands: How Students Use Token Systems to Get What They Need**
» Renée Link

3:09pm **Discussion (S174)**
» kim woodrum

Continued from **Tuesday, 30 July**

2pm **S124: George R. Hague Memorial AP/IB Chemistry Symposium**
JSB-203
Chaired by: Alice Putti

2pm **Introduction (S124)**
» Elinor Soult

2:06pm **Strategies For Teaching Entropy.**
» Alice Putti

2:27pm **Introduction to Microstates via Coin Toss (AP Chemistry)**
» Jennifer Cook Gregory

2:48pm **Inquiry Activities in AP Chemistry**
» Amanda Horan

3:09pm **Updates and Instructional Resources for AP Chemistry**
» Jamie Benigna

2pm **S37: Chemistry Education Research: Undergraduate Student Research Symposium**
JSB-213
Chaired by: Julie Donnelly and Nicole Lapeyrouse

2pm **Introduction (S37)**
» Elinor Soult

2:06pm **The Impact of Test Anxiety on Student Test Performance in Large Enrollment Lower Division Chemistry Classes: A Survey Study**
» Draven Ruiz, Christopher Randles, Marjan Roshandel

2:27pm **Interview Insights on Test Anxiety in Lower Division Chemistry Courses and How it is Perceived by Students.**
» Noor Alaraj, Gavin Winslow, Draven Ruiz, Marjan Roshandel, Christopher Randles

2:48pm **The Evolution of Conversations on Scientific Information Literacy With Post-Secondary Education Stakeholders**
» Autumn LeBleu, Matilynn Lam, Christopher Randles, Barbara Chiu

2pm **S267: Chemistry Education Research: Graduate Student Research Symposium**
JSB-321
Chaired by: Michelle Herridge

2pm **Introduction (S267)**
» Elinor Soult

2:06pm **Exploring the Cultural Capitals Latine Undergraduate Students Use When Applying to STEM Graduate Programs**
» Jorge Rivera-Colón, Danielle Maxwell, Sam Pazicni

2:27pm **Doctoral Chemistry Students' Perceptions Concerning the Value and Development of Professional Skills**
» Jherian Mitchell-Jones, Brandon Yik, Haleigh Machost, Marilyne Stains

2:48pm **Evaluating Professional Development Opportunities within United States Chemistry Graduate Programs**
» Contessa Maggard, Candis Aiken, Debra Mlsna

3:09pm **Faculty Perspectives on the Overall Goal of Doctoral Education in Chemistry**
» Benedicta Donkor, Melissa A. Collini, Jordan Harshman

2pm **Classroom Exercises for General and Organic Chemistry Involving Wildlife Forensics and Food Fraud**
JSB-108
Chaired by: Scott Donnelly

Classroom Exercises for General and Organic Chemistry Involving Wildlife Forensics and Food Fraud
» Scott Donnelly

Continued from **Tuesday, 30 July**

2pm **ACS Custom Exams: How you can build and use an ACS exam that fits your needs while still having national data for comparison.**
JSB-114
Chaired by: Olga Michels

ACS Custom Exams: How you can build and use an ACS exam that fits your needs while still having national data for comparison.
» Olga Michels, David Schreurs, Jaclyn Trate, Sachin Nedungadi, Chrystal Bruce, Melissa Reeves, Patricia Kreke, Thomas Pentecost, Kristen Murphy

2pm **ADAPT: LibreTexts Online Homework System**
JSB-231
Chaired by: Delmar Larsen

ADAPT: LibreTexts Online Homework System
» Delmar Larsen

2pm **The POGIL Project Workshop: Student-Centered Learning in the Laboratory: The Science Writing Heuristic Approach**
JSB-243
Chaired by: Steve Gravelle

The POGIL Project Workshop: Student-Centered Learning in the Laboratory: The Science Writing Heuristic Approach
» Steve Gravelle, Brandon Fetterly

2pm **A Culminating General Chemistry Laboratory Experiment that Reviews Key Learning Goals Using Natural Pigments**
JSB-244
Chaired by: Jennifer Schmeisser

A Culminating General Chemistry Laboratory Experiment that Reviews Key Learning Goals Using Natural Pigments
» Jennifer Schmeisser, Nadia Marano, Emily Metzger

2pm **Reducing Barriers to Learning with Digital Chemistry Notebooks**
JSB-337
Chaired by: Jason Sonnenberg

Reducing Barriers to Learning with Digital Chemistry Notebooks
» Jason Sonnenberg

2pm **Aligning laboratory experiments with learning objectives for focused formative assessment**
JSB-347
Chaired by: Justin Shorb

Aligning laboratory experiments with learning objectives for focused formative assessment
» Justin Shorb, Mandy Dark

2pm **Active Learning in Organic Chemistry: Backward Design**
JSB-357
Chaired by: Cathy Welder

Active Learning in Organic Chemistry: Backward Design
» Cathy Welder, Catherine Serrano Lugo

3:30pm **Break**

3:45pm **S167: Playing Fun-tastic Games in Chemistry**
CP-103
Chaired by: theresa gaines

3:45pm **Introduction (S167)**
» theresa gaines

3:51pm **Organic Chemistry Telestrations™ - Using a Party Game to Teach Nomenclature**
» David Crisostomo

Continued from **Tuesday, 30 July**

4:12pm **Card Games for Kids**
» Wendy Foulis

4:33pm **Gamification with EMC2**
» Courtney Eddleman, Kate Fritts

4:54pm **Games in chemistry education research: Where do we go from here?**
» theresa gaines

3:45pm **S230: Honoring Laura Trout: Making POGIL at the High School Level a Reality**
CP-111
Chaired by: Rick Moog

3:45pm **Introduction (S230)**
» Rick Moog

3:51pm **Transformative Professional Development Through the High School POGIL Initiative**
» Ellen Yezierski

4:12pm **The Continuing Impact of Laura Trout**
» Rick Moog

4:33pm **Panel Discussion (S230)**
» kim woodrum

4:54pm **Panel Discussion, Continues (S230)**
» kim woodrum

3:45pm **S242: Integrating Green Chemistry and Sustainability into Chemistry Education**
CP-114
Chaired by: Loyd Bastin and Andy Dicks

3:45pm **Introduction (S242)**
» Loyd Bastin

3:51pm **Enhancing the organic chemistry laboratory experience: "Green" experiments**
» Anju Sharma

4:12pm **Green improvements of reductions of α/β-unsaturated carbonyl compounds**
» Matthew Tracey, Manisha Nigam

4:33pm **Effective and environmentally friendly bromination reactions of benzene derivatives**
» Jose Boquin Romero, Dell Jensen Jr

4:54pm **Green Synthesis of the Crystal Violet via Deep Eutectic Solvents**
» James Plampin

3:45pm **S164: Inside the Division of Chemical Education**
CP-139
Chaired by: Stephanie Ryan and Resa Kelly

3:45pm **Introduction (S164)**
» Stephanie Ryan

3:51pm **ACS Examinations Institute: Structure, Function and Fit Within the Division of Chemical Education**
» Kristen Murphy, Alex Grushow, Olga Michels, Sachin Nedungadi, Jaclyn Trate

4:12pm **Chemistry Education Research Committee**
» Ryan Stowe, Alena Moon

4:33pm **Introducing the Biennial Conference Committee**
» Renée Cole, Justin Carmel

4:54pm **International Activities Committee**
» Stephanie Ryan, James Mendez

Continued from **Tuesday, 30 July**

3:45pm **S59: Engaging Students & Curriculum Development in Large Classes**
CP-153
Chaired by: Alicia Paterno

3:45pm **Introduction (S59)**
» Elinor Soult

3:51pm **Development of a Learning Assistant Program With Limited Resources**
» Alan Gift, Sachin Nedungadi

4:12pm **Using Learning Assistants to Facilitate Student Engagement in a Large Enrollment General Chemistry Course**
» Emily Pelton

4:33pm **Providing Professional Growth for Learning Assistants (LAs)**
» Lisa Funari

4:54pm **Q&A Session (S59)**
» kim woodrum

3:45pm **S298: Present and Future Directions in Organic Chemistry Laboratory Courses**
CP-155
Chaired by: Noel Paul

3:45pm **Introduction (S298)**
» Noel Paul

3:51pm **Authenticity-Driven Design of a High-Enrollment Organic Laboratory Course**
» Brian Esselman, Nicholas Hill, Kimberly DeGlopper, Aubrey Ellison, Ryan Stowe, Cara Schwarz, Niall Ellias

4:12pm **Making It E-Z: Incorporating 2D NMR in the Organic Chemistry Lab (Part I)**
» Will O'Neal

4:33pm **Making It E-Z: Incorporating 2D NMR in the Organic Chemistry Lab (Part II)**
» Will O'Neal

4:54pm **Q&A Session (S298)**
» Noel Paul

3:45pm **S83: Developing Mechanistic Reasoning in Organic Chemistry: Research and Practice**
CP-179
Chaired by: Benjamin Burlingham

3:45pm **Introduction (S83)**
» April French

3:51pm **Affordances Offered by Electrostatic Potential Maps While Investigating Students' Understanding in Organic Chemistry**
» Ayesha Farheen, Bradley Chem, Isaiah Nelsen, Betul Demirdogen, Melissa Weinrich, Scott Lewis

4:12pm **Examining Organic Chemistry Students' Usage and Perceived Utility of Electrostatic Potential Maps**
» Chloe Robinson, Scott Lewis, Melissa Weinrich

4:33pm **Once Upon a Reaction: Storytelling Through Electron-Pushing Arrows**
» Danielle Jacobs

4:54pm **Building a Reasoning-Centered Course That Works for Students: A Case Study**
» Benjamin Burlingham

3:45pm **S158: Designing and Facilitating Chemistry Learning Environments Anchored in Phenomena**
CP-183

Continued from **Tuesday, 30 July**

3:45pm **Introduction (S158)**
» April French

3:51pm **Teaching Science with a Purpose**
» Laura Walther, Wilson Shafer

3:45pm **S131: Engaging Students using the Chemistry of Beverage Alcohol**
CP-201
Chaired by: Leonard Demoranville

3:45pm **Introduction (S131)**
» April French

3:51pm **The Degradation of Wine: An Experimental Design Project for Analytical Chemistry and Beyond**
» Ivy Fortmeyer

4:12pm **Creating Picobreweries in the General Chemistry Lab: A Guide to Creating and Analyzing Beer with Undergraduates in less than 3 Hours a Week.**
» Daniel Blumling, Christine Hughey, Brycelyn Boardman, Oscar Judd, Dylan Boeckmann, Daniel Paunovic, Lauren Slaber, Hayden Chewning

4:33pm **Using Kombucha and Vodka to Engage Students and Drive Research Projects**
» Benjamin Smith

4:54pm **Using the Chemistry of Beer, Wine, and Bourbon to Teach Primary Scientific Literature and Science Communication**
» Leonard Demoranville

3:45pm **S233: Computers in Chemical Education**
CP-208
Chaired by: Robert Belford and Tanya Gupta

3:45pm **Introduction (S233)**
» Elinor Soult

3:51pm **Quantum chess workshops as a method to introduce quantum information science through quantum superposition for high school students**
» Heidi Hendrickson, Leah Boyle, Padmanabh Kaushik, Nick Sorak, Kusum Subedi, Swetha Tadisina, Vedit Venkatesh, Lucas Villamil, Nam Vu, Crystal Yeung, Maya Zilberstein, Delmar Azevedo Cabral, Brandon Allen, Pouya Khazaei, Andrew Projansky, James Whitfield, Victor Batista

4:12pm **Exploring the Potential of Computational Chemistry Inquiries in High School**
» Benjamin Pölloth

4:33pm **Thermochemistry: Enhancing Chemical Education through Computational Chemistry**
» Felipe Cordova Lozano, Ana Karen Cordova Estrada

4:54pm **Combining Computer Algebra Systems and Data Analysis using Open Source Tools**
» Jonathan Gutow

3:45pm **S98: Effective Approaches to Inclusive Chemistry Education**
CP-211
Chaired by: Kate Ries

3:45pm **Introduction (S98)**
» April French

3:51pm **Fostering Inclusive Environments in Undergraduate Chemistry Courses: Collaborative Class Norms**
» Akiko Nakamura

4:12pm **The Inclusive STEM Teaching Project: An Online Faculty-Development Program for Instructors Teaching STEM Undergraduates**
» Regina Frey

Continued from **Tuesday, 30 July**

4:33pm **Culturally Responsive Teaching in the Science Classroom: How Science Teachers in Rural Alaska Build Relationships With the Community**
» Danielle Maxwell, Archer Harrold, Safron Milne, Jeffrey Spencer, Ginger Shultz

3:45pm **S136: Data-driven Approaches for Using Interactive Online Courseware to Improve Learning and Increase Equity**
CP-220
Chaired by: Mark Blaser

3:45pm **Introduction (S136)**
» April French

3:51pm **Adopting Active Learning Encourages Student Agency and Supports Student Success**
» Michele Stover, Michelle Herridge

4:12pm **Insights into How Students' Engagement with Online Instructional Materials Impacts Learning**
» Mark Blaser, Josh Hartman, Gizelle Sherwood, Slava Bekker

4:33pm **REAL Explorations in Chemistry**
» Mark Blaser, Chris Mead, Bayli Gray, Ethan Chang, Kim Larson, Joe Tamer, Ariel Anbar, David Yaron, Kathryn Rico, Miasha Brunkhorst, Melanie Narish, Richard Hines

4:54pm **Q&A Session (S136)**
» kim woodrum

3:45pm **S47: Beyond Confirmatory Experiences: Teaching in the Chemistry Laboratory**
CP-222
Chaired by: David Styers-Barnett

3:45pm **Introduction (S47)**
» Elinor Soult

3:51pm **Choose Your Own Adventure: Student Choice of Application of Visible Light Absorbing Ruthenium Complexes as a Final Project in Inorganic Chemistry Laboratory**
» Robert Perkins

4:12pm **Synthesis of MAO-B Inhibitors and Analysis of Their Inhibition Properties: A Medicinal Chemistry Research-Based Laboratory for Undergraduates**
» Vincent A. Sichula

4:33pm **Taking it on the Road: Labs as Outreach**
» David Styers-Barnett, Brad Neal

4:54pm **Q&A Session (S47)**
» kim woodrum

3:45pm **S114: Integrating Humanities into Chemistry Education**
CP-287
Chaired by: Feier Hou

3:45pm **Introduction (S114)**
» Feier Hou

3:51pm **Chemistry in the Kitchen: A new Capstone CURE at George Mason University**
» Rebecca Jones

4:12pm **A Glass and Ceramic Laboratory for an Art Focused Chemistry Class**
» Sarah Pierce

4:33pm **Can Art Make Science More Personal?**
» Maria Gallardo-Williams

4:54pm **Q&A (S114)**
» Feier Hou

Continued from **Tuesday, 30 July**

3:45pm **S228: Multilingual Learners in Chemistry**
CP-297
Chaired by: Julia Chamberlain

3:45pm **Introduction (S228)**
» Julia Chamberlain

3:51pm **Multilingual college students' identity construction in STEM learning environments**
» Minjung Ryu, Roshni Bano, Maggie Jeong O'Brien

4:12pm **College Multilingual Learners' Use of Translanguaging in Chemistry Learning Contexts**
» Adeesha Jayathilaka, Fatima Ali, Maggie Jeong O'Brien, Minjung Ryu

4:33pm **Panel Discussion (S228)**
» Julia Chamberlain

3:45pm **S174: Disrupting Grading**
JSB-121
Chaired by: Clarissa Sorensen-Unruh and Renée Link

3:45pm **Introduction (S174)**
» April French

3:51pm **Proficiency Instead of Partial Credit: Implementation of Specifications Grading in an Organic Chemistry Course**
» Matthew DeMatteo

4:12pm **Lessons Learned using Specifications Grading in Organic Chemistry Courses**
» Joseph Simard, Samuel Touchette

4:33pm **How Student Buy-In to Specifications Grading Changes Across Semesters**
» William Howitz

4:54pm **Discussion (S174)**
» kim woodrum

3:45pm **S124: George R. Hague Memorial AP/IB Chemistry Symposium**
JSB-203
Chaired by: Alice Putti

3:45pm **Introduction (S124)**
» Elinor Soult

3:50pm **Summary of Student Successes and Challenges on the 2024 AP Chemistry Exam**
» Kyle Beran, Jamie Benigna

3:45pm **S37: Chemistry Education Research: Undergraduate Student Research Symposium**
JSB-213
Chaired by: Julie Donnelly and Nicole Lapeyrouse

3:45pm **Introduction (S37)**
» Elinor Soult

3:51pm **Investigating Student Perceptions of Learning in the Flipped Biochemistry Course**
» Lacey Sharman, Amanda Chee-Awai, Tamra Legron-Rodriguez

4:12pm **Exploring Students' Perceived Engagement in a Flipped-Classroom Biochemistry Course**
» Amanda Chee-Awai, Lacey Sharman, Tamra Legron-Rodriguez

4:33pm **Exploring Student Reasoning When Translating Between Dash-Wedge Diagrams and Chair Conformations**
» Amala Jones

4:54pm **Examining the effectiveness of student-created instructional videos in an Organic Chemistry lecture course**
» Hunter Roadhouse, Maximus Schultz, Ashley Steelman, Jennifer Osterhage

Continued from **Tuesday, 30 July**

3:45pm **S267: Chemistry Education Research: Graduate Student Research Symposium**
JSB-321
Chaired by: Michelle Herridge

3:45pm **Introduction (S267)**
» Elinor Soult

3:51pm **How Does Peer-Review Affect Students' Epistemic Engagement in Selecting Between Alternative Explanations?**
» John Zhou, Alena Moon

4:12pm **An Analytical Framework to Identify the Influence of Power Dynamics on Students' Organic Chemistry Learning**
» Chinwendu Igboekulie, Ira Caspari-Gnann

4:33pm **The Role of Affect in Learning: Understanding how motivation can impact instructional interventions**
» Allison Tomczyk, Mira Beranek, Kristen Murphy

4:54pm **Panel Discussion (S267)**
» kim woodrum

3:45pm **Writing equitable assessments: Strategies for chemistry educators and chemistry education researchers to construct more accessible and inclusive assessments**
JSB-108
Chaired by: Eshani Lee

Writing equitable assessments: Strategies for chemistry educators and chemistry education researchers to construct more accessible and inclusive assessments
» Eshani Lee, Jack Barbera, Anna Eunji Kim

6pm **Poster Session 3**
Gatton Student Center, 2nd floor

Utilizing Eye-Tracking Technology to Identify and Quantify Different Knowledge Levels that Students Have of The Periodic Table of the Elements
» Victor Okuo, Stephen Testa

Undergraduate chemistry students definitions of success: Supporting factors
» Nhan Nguyen, Marina Tanizawa, Siobhan Wills, Tyler Kinner, MaryKay Orgill

New Course Design of "Safety and Quality of Fermentation Chemistry"
» Xiaoping Li

Fostering Scientific Writing Skills Through Interactive Learning: A Scaffolded Approach
» Grace Murray, Michelle Morgan, Emma Johnson, Eugene Wagner

Can Online Chemistry Laboratories Be Effective?
» Carla Karen Fortune

Using Digital Notebooks in a Second Semester Laboratory
» Robert Grimminger

Dyeing to Learn Kinetics
» Kristen Fulfer, Kai Oddo, Erin Wacther

Specifications Grading in Survey of Chemistry I: Impacts on Grades, Content Knowledge, and Student Attitudes
» Lori Wilson, Theresa Butori, Ana Rumbao, Myles Sedgwick, Kaylee Todd, Irene Kokkala

Benevolent Grading
» Sarah Shoemaker

Cooperative Organic Chemistry Manual: A Practical Guide to Sustainable Practices
» Menggi Zhang, Elizabeth Day, Melanie Cooper

Continued from **Tuesday, 30 July**

Incorporating Green Chemistry in the Undergraduate Organic Chemistry Laboratory Curriculum and in Student Research Projects
» Ashley Bartelson

Active Learning to Explore Periodic Trends at Madison College
» Christine Hustmyer, Christen Smith

Using a Deliberation Module in Introductory Chemistry Courses to Encourage Learning, Communication, and Civic Skills at 2- and 4-Year Colleges
» Sara Drury, Amanda Nienow, Jessica Imholte, Reni Joseph, Laura Wysocki, Katherine Knobloch, Pamela Conners

Student-centered Instructional Practices Identified from the Syllabus are Associated with more Positive Student Perceptions of their Instructors' Mindset, Particularly for Vulnerable Student Populations in STEM
» Ronia Kattoum, Cole Dwyer, Mark Baillie

The Current State of Literature on the Education of Blind and Visually Impaired (BVI) Students in Chemistry
» Jarah Nelson, Erin Saitta

PR-SPRInT: to engage the new generation of explorers
» Maria Gil, Liz Diaz, Eduardo Nicolau

Capturing GTAs Authentic Use of UDL-Aligned Practices in University Chemistry Labs
» Sloan Berry, Kathleen Lugo Charriez, Julia Willison, Erin Scanlon, Jacquelyn Chini, Erin Saitta

Chemistry is Everywhere: Analyzing Student Responses to a General Chemistry I Homework Assignment for Additional Explanations and the use of Scientific Language
» Elizabeth Rodriguez, Ariel E. Vaughn

Implementing an Anonymized and Scaffolded Search at A Primarily Undergraduate Institution
» Barbara Reisner, Donna Amenta, Christopher Berndsen, Daniel Blumling, Kevin Caran, Thomas DeVore, Jill Hagmaier, Christine Hughey, Qingsheng Liu, Isaiah Sumner, Linette Watkins

Inclusive Excellence in STEM: Illinois College AERO-STEM's Collaborative Path to Success
» Jocelyn Lanorio

From the Desktop to the Benchtop: Making Data and Lab Tools Accessible to All
» Emily Alonzo, Travis Lato, Levi Garza, Mayte Gonzalez, Bryan Shaw

Fostering an Inclusive and Active Learning Environment in Introductory Chemistry to Improve Student Success in STEM at a Hispanic Serving Institution
» Betzaida Castillo, Wilson González-Espada, Josee Védrine-Pauléus, Lilliam Casillas

Improving Accessibility for Students with Blindness and Low Vision in the Organic Chemistry Teaching Laboratory
» Roxane Jourdain, Levi Garza, Bryan Shaw

Instructional Lab Videos: Increasing Engagement and Making the Most of Lab Time
» Adam Kleman

Analyzing Instructor Feedback During Active Learning Knowledge Construction: Considering the Tensions Between Ideological and Pragmatic Priorities
» Ryleigh Porter, Amy Phelps, Gregory Rushton, Aspen Malone, Joshua Reid, Shaghayegh Fateh, ZUBEYDE DEMET KIRBULUT GUNES

An Experience with Using Alternative Assessments in a Second Semester General, Organic and Biological Chemistry (GOB) Course
» Vivian Mativo

Continued from **Tuesday, 30 July**

Sequestration of Pb2+ from aqueous solution using bio-based-alkaline modified sorbent from waste Irvingia gabonensis seed husk
» Hillary Abugu

Introduction to the Chemistry of Materials: a sustainability-themed general education course
» Jennifer Mihalick

Building civic engagement and understanding in chemistry classes with the C-SPAN Archives
» William Donovan, Andrea Langrish

Rebuilding Online Introductory Chemistry Curriculum: Building Community, Metacognition, and Self-Confidence in Our Students
» Rebecca Laird

Evaluation of a low barrier supplemental instruction program: Mindset, self-efficacy, metacognition, and performance of general chemistry students
» Summer Bouillon, Hannah Sturtevant

An Empathetic Face to Failure: What Does Failure Mean in Chemistry Laboratories
» Shauna Schechtel, Amanda Bongers

Forensic Chemistry - Establishing a Forensic Track at Georgetown College
» Todd Hamilton

Factors within an Introductory Course that Influence Students' Perception of Chemistry
» Oluwatobi Odeleye, Courtney Glenn

Integrating Campus Sustainability Activities and their Assessment into the First-Year Engineering Curriculum
» Julio Teran

Comparison of qNMR and Enzyme Methods for the Determination of Ethanol in a Non-alcoholic Beer: An Example of Method Validation
» Jessica Bluitt, Elisa Woolridge, Neil Fitzgerald

A system-orientated concept map extension (SOCME) for sulfuric acid
» Craig J. Donahue, Faith Culp, Lauryn Hoover, Devin Nagy

Chemistry for a sustainable future: An international NSF Research Experience for Undergraduates (REU) in the United Kingdom
» Anne Glenn, Norman Chiu, Terence Nile

Querying ISSAQ Data for Insights into Student Potential for Success in General Chemistry I
» Brittany Long, Oscar Judd, Daniel Blumling

ACS' PrepareCTP Seed Grant – A pilot grant program for Community College–Industry Partnerships
» John-David R. Rocha

A pragmatic approach to using generative AI in chemistry lab writing
» Tim Doherty

Photoacoustic Experiment using Smartphones and LEGO
» Han Park, Jordan Taylor

Evaluating Chemistry Achievement and Persistence through Student Science and Math Motivation and Sense of Belonging
» Emily E. Hardy, Tony Perez, Arianna White-Levatich, Melissa Colangelo, David Courson, Chris Freeman, Lisa Linnenbrink-Garcia

Mentoring the United States Chemistry Olympiad Team: Professional Development for High School and College Faculty
» Esther Hines, Joseph Houck, Laura Serbulea, Songwen Xie

Continued from **Tuesday, 30 July**

7pm **Poster Session 4**
Gatton Student Center, 2nd floor

Undergraduate chemistry students definitions of success: Barriers and mitigation strategies
» Marina Tanizawa, Nhan Nguyen, Tyler Kinner, Siobhan Wills, MaryKay Orgill

Integration of Inquiry-Based Hands-On Activities in a Physical Science Course for Education Majors
» John Trombley

"I was reading what I didn't know": a qualitative study of how students approach reading in a college-level introductory chemistry class
» Leah Johnson, Fatoumata Diawara, Anja Blecking

STEMulate the vote: Strategies to improve chemistry student engagement in democracy
» Bridget Trogden

Teaching the non-controversy: Using critical thinking in a non-majors class on the chemistry of climate change
» Christopher Dunlap

The Elements of a Chemistry Program
» Ray Dudek

NSF Programs that Support Chemistry Education
» Jennifer Lewis, Kalyn Owens, Dawn Rickey

Enhancing STEM Student Preparedness: A Holistic Approach
» Richard Boniak, Ami Johanson, Michelle Korir, Chetna Patel

Development of entrepreneurial skills in the production of rose water in the undergraduate chemistry laboratory
» Sangeeta Kumar, Viniti Gupta, Neha Kamal, Manisha Nigam

Capitalizing on Curiousity: Putting Chemistry on Display
» David Kiely, Amy Phelps

Harry Potter: The Science Behind the Magic
» Olivia Owens

Reactive Intermediates in Organic Chemistry Education: Results of a National Survey
» Teresa Gibbons, Sachin Nedungadi

Unlocking Excellence: 3-D Models as the Key to Pre-Class Mastery
» Michelle Nelson, Olivia Crandell

Development of an Organic Chemistry Laboratory Course for Biological Sciences Majors
» Satya Dulam, Juliana Lessa Sacoman

Innovations in Chemical Education: Developing New Labs and Revamping Old Classics in Physical Chemistry labs
» Lauren Woods, Michael Murphy, Jay Foley, Jessica White

Embedding Information Literacy Practices in an Upper Division Chemistry Lab Class at a University in the United States of America
» Christopher Randles, Matilynn Lam, Katy Miller

Escape the Chemistry Lab! (an escape room experience)
» Breeyawn Lybbert

Directing Group Patterns Exhibited by (Halomethyl)benzenes in Electrophilic Aromatic Nitration Reactions
» Nathan Hazel, Noel Paul

A colorful liquid-liquid extraction experiment for the Organic Chemistry laboratory
» Jose Juncosa

Continued from **Tuesday, 30 July**

Theory in practice: Iterative design of an introductory, large-enrollment organic chemistry laboratory
» Kason J. Glover, John P. Wolfe

The Muti-Step Synthesis of a Nicotine Analog in an Organic Chemistry II Laboratory Course
» Perry Corbin, Robert Bergosh

Alternative Assessments of Spatial Reasoning and Mechanisms using Models in the Organic Chemistry Classroom
» Anna Sigmon

HELP or WELP? Using Multiple Metrics to Categorize Students Based on Effort and Performance
» Rachel Doughty, Olivia Crandell, Xavier Prat-Resina

There's Always Bloom for Improvement: A Metacognitive Approach to Redesigning Student Assessments within CANVAS
» Amanda Hughes

Engaging students outside the classroom in popup workshops
» Angie Spencer

Women's gender stigma consciousness when communicating about NMR spectra
» Alex Browning, Ally Parvin, Megan Connor

Increasing Success of STEM Students through Cohort Building, Mentoring and Career Discerning Experiences: An NSF SSTEM Project
» Lori Watson, Michael Deibel

The Perceptions of Participants and Volunteers Before and After a STEM Outreach Event for Middle School Girls
» Mary Fennimore

Fostering STEM Interest Through Chemistry Connections with the Community
» Dilani Koswatta, PhD., Carmen Velez, PhD

Middle Grades in the Mix - STEM Outreach in North Louisiana
» William Deese, Kristie Ruddick, Cathi Cox-Boniol, Missy Wooley

Science For Everybody - Concordia Science Academy
» Graeme Wyllie

Outreach resources for science engagement and education: this is the mission of the ACS Committee on Community Activities
» Lori Stepan

Cutting edge science research being used in elementary school classrooms, the I bet you didn't know project
» Dudley Shallcross, Alison Trew

Explore how Undergraduate Teaching Experiences Shape Students' Career Goals in a Primarily Undergraduate Institution
» Dihua (Victoria) Xue

ChatGPT vs Students: Who wrote it better?
» Morgan Clark, Micke Reynders, Thomas Holme

Chemical safety and security education: laboratory personnel views
» Rethabile Tekane, Francinah Futhane, Kgadi Mathabathe

Safety is Essential: An Analysis of Teachers' Safety Culture
» Lydia Richardson, Dawn Del Carlo

3-Dimensional Learning and Assessments in the Context of Analytical Chemistry
» Amanda Buchberger, Kimberly DeGlopper, Kyoung-Shin Choi, Robert Hamers, Lloyd M. Smith, Ryan Stowe

Continued from **Tuesday, 30 July**

Exploring Interdisciplinary Knowledge Integration using Systems Thinking and Mechanistic Reasoning frameworks
» Vinutha Ravinageswaran, Maria Oliver-Hoyo

Bridging Between General and Organic Chemistry with Solubility and The Scientific Method
» Sarah Joiner

Implementing High-Impact Activities Aimed at Metacognitive Development into a Two-Semester Organic Chemistry Course
» Matthew Siebert

Solvatochromism and Preferential Solvation in Binary Mixtures
» Bret Findley

Fool Around and Find Out: Using Microwave Generated Plasma as a Source of Undergraduate Research Topics
» Julia Buccola, Eugene McGough, Eniko Szabad, Samuel Williams, George Harakas, Shawn Huston

< The Dirac | Notation Game>
» Trilisa Perrine

Introducing Python and Jupyter Notebooks a First Semester Physical Chemistry Course
» Amanda Nienow, Caden Gunnarson

A system-orientated concept map extension (SOCME) for primary aluminum production
» Craig J. Donahue, Aaron Engelhardt, Tyler Stewart, Noah Zain

Supporting Our Students: Utilizing Google Apps to Work Smarter Not Harder
» Jessica Imholte

Wednesday, 31 July

7am **Breakfast**
Champions Kitchen, inside Gatton Student Center

8am **Workshop and Demo Prep**
JSB-258

8:30am **S303: Teaching Chemical Safety In The Classroom/Laboratory**
CP-103
Chaired by: Steven Wietstock

8:30am **Introduction (S303)**
» Steven Wietstock

8:36am **Resources for Teaching Safety in the Classroom and Laboratory**
» Steven Wietstock

8:57am **Introducing RAMP in General Chemistry Laboratory Through An Asynchronous Online Curriculum**
» Chad Rezsnyak, Olivia Furr

9:18am **The General Chemistry Lab as a Launchpad for a Culture of Safety**
» Kaitlyn Connelly

9:39am **Safety and Laboratory Techniques for Introductory Chemistry**
» Deborah Rosenthal

8:30am **S275: Integrating Forensic Science Courses Into the Curriculum and Growing Forensic Science Programs**
CP-111
Chaired by: David Cunningham

Continued from **Wednesday, 31 July**

8:30am **Introduction (S275)**
» David Cunningham

8:36am **Teaching Forensic Chemistry at Alabama State University**
» Harvey Hou

8:57am **Forensics Summer Camp - A Week-long Journey from Crime Scene to Court Case**
» Laura Walther

9:18am **Let's Solve It: Designing an Interactive and Engaging Online Forensic Science Laboratory Course**
» Gina Londino-Smolar

9:39am **Establishing a Forensics Program: Bridging Academia and Investigative Practice**
» Michael Ward, Davy Jones, Isabel Mellon

8:30am **S59: Engaging Students & Curriculum Development in Large Classes**
CP-153
Chaired by: Alicia Paterno

8:30am **Introduction (S59)**
» Elinor Soult

8:36am **Connecting the Dots: Investigating the Relationship Between Self-Concept, Social Belonging, Academic Mindset, and Imposter Syndrome and Student Performance in General Chemistry**
» Vanessa Bustamante

8:57am **Examining the Relationship Between Motivation and Course Performance for Transfer Students in a PLTL General Chemistry Classroom**
» Jacob McAlpin, Jennifer Lewis

9:18am **Understanding Student Attitudes and Topic Confidence in a Series of Novel BIO-Focused General Chemistry Courses**
» Candis Aiken, Debra Mlsna

9:39am **Addressing Academic Challenges: A Drill Session Initiative in General Chemistry I**
» Eric Eitrheim, Amanda Waters

8:30am **S84: Active Learning in Organic Chemistry**
CP-155
Chaired by: Cathy Welder and Danielle Jacobs

8:30am **Introduction (S84)**
» Danielle Jacobs

8:36am **Flipped Classroom for Implementation of Higher Complexity Problem-Solving Sessions in Organic Chemistry**
» Marwa Abdel Latif

8:57am **Measuring the Effectiveness of a Flipped Classroom on Higher-Order Learning Objectives**
» Matt Casselman

9:18am **A Data-Driven Exploration of Substituent Directing Effects in Organic Chemistry**
» Stuart Moon, Rebecca Broyer

9:39am **Adding In-Class Learning Checks to Improve the Quality of Pre-Class Learning in Flipped Classrooms**
» Doug Schirch

8:30am **S76: Mixing It Up With Informal Chemistry Education: An Unconventional Chemistry Circus - Where Formal Meets Fun!**
CP-183
Chaired by: Matt Queen

8:30am **Introduction (S76)**
» Matt Queen

Continued from **Wednesday, 31 July**

8:36am **Chemistry Under The Big Top; ACES Put Chemistry Center Stage**
» Matt Queen, Amanda Obery

8:57am **Informal chemistry education and rockets: Using a novel online source to connect chemistry to science events**
» Kathleen Holley, John Galloway

9:18am **The Big Blue Demo Crew: Informal science education outreach through student demonstration shows**
» Kathleen Holley

9:39am **"10 Cent" Demos for General Chemistry**
» Laura Prescott

8:30am **S131: Engaging Students using the Chemistry of Beverage Alcohol**
CP-201
Chaired by: Leonard Demoranville and Kameyo Johnson

8:30am **Introduction (S131)**
» April French

8:36am **An Honors Program Course: The Chemistry of Beer and Brewing**
» Benjamin Shepler, Derek Behmke

8:57am **An Integrated Team-Taught Undergraduate Fermentation Science Course to Promote the Interconnectedness of Chemistry and Biology**
» Kyle Schnitzenbaumer, Paul Duffin

9:18am **Teaching GOB Sequence in the Context of Applied Beverage Chemistry**
» chelsea gustafson, Jenette L. Anderson

9:39am **Integration of Chemical Concepts into General Education and Upper Division Fermentation Science Courses**
» Cory Emal, Taylor Heckaman, Gregg Wilmes

8:30am **S252: Connecting Course Based and Traditional Research Experiences**
CP-208
Chaired by: William Carroll

8:30am **Introduction (S252)**
» Elinor Soult

8:36am **Integrating Research and Education Through the Chemistry Lab Curriculum**
» William Carroll, Edward Lisic

8:57am **The Effects of Silver Nanoparticles on Plants: An Interdisciplinary Course-Based Undergraduate Research Experience (CURE)**
» Emma Downs, Erin Rehrig, Catherine Buell

9:18am **The Power of Undergraduate Research Experiences in Students' Performance, Motivation, and Belonging.**
» Illya Medina Velo, Curtis Henderson

9:39am **Connecting New First-Year and Transfer Students to Research at a Large R1 University through CUREs**
» Whitney Duim

8:30am **S40: Communities of Practice Transforming Chemistry Education**
CP-211
Chaired by: Jeffrey Raker

8:30am **Introduction (S40)**
» Elinor Soult

8:36am **Chemistry Communities of Practice as Agents of Change in Chemistry Education**
» Joanne Stewart

Continued from **Wednesday, 31 July**

8:57am **Intentionality in Fostering Social Cohesion of STEM Faculty through a Community of Practice around Evidence-Based Instructional Practices**
» Lundon Pinneo, Stephanie Feola, Ronia Kattoum, Michael Moore, Mark Baillie

9:18am **Using Social Network Analysis to Explore Co-authorship of Curricular Materials: Insight into the IONiC Community of Practice**
» Stephanie Frost, Jeffrey Raker, Anne Bentley, Shirley Lin, Justin Pratt, Barbara Reisner, Joanne Stewart

9:39am **A Community of Practice to Promote Best Practices in Teaching General Chemistry**
» Joshua Darr, Sachin Nedungadi, John Conrad, Alan Gift, Dana Richter-Egger, Andrew Miller, Nikae Perkinson, Edmund Tisko, Christopher Moore

8:30am **S75: Alternative Pathways in General Chemistry: Meeting the Needs of Varied Student Populations**
CP-220
Chaired by: Rebecca Ricciardo

8:30am **Introduction (S75)**
» Elinor Soult

8:36am **Above and Beyond Active Learning: Designing a Student Centered Learning Environment through Assignments that Encourage Student Metacognition and Planning**
» Christine Altinis-Kiraz, Mary Emenike, Marc Muniz

8:57am **Decoding Trends: Study Habits' Impact on General Chemistry Performance in Online Homework and Exams**
» Max Wallace, Kristina Proctor

9:18am **CHEM 1 Solutions: A Student Support Course**
» Karissa Addamane

9:39am **The CHEM+ Program: An Alternative Approach to Teaching General Chemistry at Emory**
» Antonio Brathwaite, Tracy McGill, Christopher Beck

8:30am **S31: Current Research on the Undergraduate Chemistry Laboratory**
CP-222
Chaired by: Nikita Burrows

8:30am **Introduction (S31)**
» April French

8:36am **Community-Based Science in Environmental Chemistry Research**
» Kamila Deavers, Ph.D

8:57am **Exploring the Science Practices Across Introductory Chemistry, Biology, and Physics Labs**
» Norda Stephenson, Lina Dahlberg, Tra Huynh, Lukas Spring, Katherine Hunter, Elayna Worline

9:18am **Managing Complexity in Laboratory Learning: Latour's Circulating Chain of Reference**
» Donald Wink, Mustafa Demirbuga, Jim Coombs, Robert Milligan

9:39am **Exploring the Interactions and Relationships Between Student Engagement in the Organic Chemistry Laboratory**
» Devin Pontigon

8:30am **S114: Integrating Humanities into Chemistry Education**
CP-287
Chaired by: Feier Hou and Rebecca Jones

8:30am **Introduction (S114)**
» Feier Hou

8:36am **Recreating Historical Chemical Advertisements Using Material Safety Data Sheets**
» Julian Silverman

Continued from **Wednesday, 31 July**

8:57am **The Historical Lens: A Textbook Agnostic Approach to General Chemistry**
» Benjamin Wicker

9:18am **Creating an Interdisciplinary WWII-Era Science Course**
» Joseph Mullins

9:39am **Design, Implementation, and Reflections of a Hybrid Chemical Communication - Scientific Obligations Course at Ursinus College**
» Ryan Walvoord

8:30am **S42: Scaffolding and Assessing Professional Skills and Science Practices in the Undergraduate Curriculum: Addressing the 2023 ACS Guidelines**
CP-297
Chaired by: Regina Frey

8:30am **Introduction (S42)**
» Regina Frey

8:36am **Introduction to the new ACS Guidelines for Scaffolding and Assessing Professional Skills and Science Practices in the Undergraduate Curriculum**
» Michelle Brooks, Ashley Mahoney, Kimberley Frederick, Renée Cole, Regina Frey

8:57am **A Backward Design Approach to Scaffolding Professional Skills in a Chemistry and Biochemistry Program**
» Kelly Neiles, Daniel Chase

9:18am **Using Explicit Instruction on the Nature of Science to Improve Science Practices**
» Geri Kerstiens, Anne Baranger, Michelle Douskey

9:39am **Going Beyond Content Knowledge: Aligning Outcomes, Activities, and Assessment That Promote Skill Development**
» Renée Cole, Juliette Lantz, Suzanne Ruder

8:30am **S271: Pedagogical Innovations for Upper Division Labs**
JSB-103
Chaired by: Marie van Staveren and Steve Mang

8:30am **Introduction (S271)**
» Marie van Staveren

8:36am **Ungraded Methods to Help Students Make Meaning During Lab Time**
» Marie van Staveren

8:57am **Master Chemist: Inorganic Edition—Gamifying an Intermediate Inorganic Laboratory Course**
» Paula Mazzer

9:18am **SuperLab–An Immersive Writing-Intensive Course Focused on Developing Research Skills and Building Community**
» Karen Brewer, Yang (Vanessa) Song

9:39am **Undergraduate Chemistry Labs: The Student View**
» Russ Pearson, Lorna MacKenzie

8:30am **S174: Disrupting Grading**
JSB-121
Chaired by: Clarissa Sorensen-Unruh and Kristi Closser

8:30am **Introduction (S174)**
» April French

8:36am **Ungrading as Emancipation: Theory and Practice**
» Clarissa Sorensen-Unruh

8:57am **Lessons in Ungrading Chemistry**
» Beth Haas

9:18am **Ungrading as a compassionate tool for retaining first-year STEM students: lessons, improvements, and challenges in the general chemistry classroom**
» Sydnie Aysen, Damjan Benoit, Judy Chauvin, Theodore Alivio

Continued from **Wednesday, 31 July**

9:39am **Ungrading and student engagement**
» Cynthia Woodbridge

8:30am **S299: Artificial Intelligence in Chemistry Education**
JSB-203
Chaired by: Mike Christiansen

8:30am **Introduction (S299)**
» Elinor Soult

8:36am **Metacognitive Strategies in Chemistry Problem Solving: A Response-and-Critique Approach with AI**
» Elizabeth Yuriev, Betty Exintaris, Nilushi Karunaratne

8:57am **Evaluating the Precision of Generative AI in Solving Computational General Chemistry Problems**
» Johnathan Broome, Kayla Stan

9:18am **Modeling environmentally relevant chemical reactions with machine learning**
» Huichun (Judy) Zhang

9:39am **Towards metrics to assess A.I.-driven rubric grading in chemistry labs**
» Dane DeSutter

8:30am **S267: Chemistry Education Research: Graduate Student Research Symposium**
JSB-321
Chaired by: Michelle Herridge

8:30am **Introduction (S267)**
» Elinor Soult

8:36am **Investigating the Help-Seeking Behaviors of Undergraduate Organic Chemistry Students: How do we create a community of inquiry?**
» Alison Anderson, Josie Nardo

8:57am **"Oh, so there's a problem": How students manage uncertainty when engaging in group argumentation**
» Mary Tess Urbanek, Amelie Cole, Alena Moon

9:18am **How Can I Help: Asking students about problems they face in introductory chemistry courses**
» Zephaniah Greenwell, Stephen Burgin

9:39am **The Impact of Learning Assistant Facilitation Practices on Student In-the-Moment Learning**
» Nicolette Maggiore, Kataleeya Powers, Krystal Lwanga, Ira Caspari-Gnann

8:30am **Inventorying in-lab opportunities to engage in expert-like thinking**
JSB-108
Chaired by: Robin Stoodley

Inventorying in-lab opportunities to engage in expert-like thinking
» Robin Stoodley

8:30am **Introduction to Machine Learning in Chemistry using Python. Part 1: Working with a data set and building a chemistry machine learning model. Part 2: Building data sets and cheminformatics models**
JSB-114
Chaired by: Ashley McDonald

Introduction to Machine Learning in Chemistry using Python. Part 1: Working with a data set and building a chemistry machine learning model. Part 2: Building data sets and cheminformatics models
» Ashley McDonald, Bonnie Hall, Mohammad Mostafanejad

Continued from **Wednesday, 31 July**

8:30am **Writing Competitive Grant Proposals**
JSB-221
Chaired by: Allegra Liberman-Martin

Writing Competitive Grant Proposals
» Joerg Schlatterer, Allegra Liberman-Martin

8:30am **The POGIL Project Workshop: Classroom Facilitation**
JSB-231
Chaired by: Laura Trout

The POGIL Project Workshop: Classroom Facilitation
» Laura Trout, Rodney Austin

8:30am **From Seed to Tree: Integrating Racial, Social, and Environmental Justice Principles into your Chemistry Curriculum**
JSB-243
Chaired by: Amanda Glass

From Seed to Tree: Integrating Racial, Social, and Environmental Justice Principles into your Chemistry Curriculum
» Amanda Glass, Kristy Wittman Howell

8:30am **3D Printable Resources for Engaging Students in the Exploration of Instrument Design and Performance: Inexpensive and User-Friendly Instrument Kits for STEM Educators**
JSB-244
Chaired by: Lon Porter

3D Printable Resources for Engaging Students in the Exploration of Instrument Design and Performance: Inexpensive and User-Friendly Instrument Kits for STEM Educators
» Lon Porter

8:30am **Active Learning in Organic Chemistry: Improve student learning and engagement with formative assessment and collaborative learning**
JSB-337
Chaired by: Justin Houseknecht

Active Learning in Organic Chemistry: Improve student learning and engagement with formative assessment and collaborative learning
» Justin Houseknecht, Janell Mahoney

8:30am **Transitioning from Excel to Python for Chemistry Lab Data Analysis**
JSB-347
Chaired by: Prajay Patel

Transitioning from Excel to Python for Chemistry Lab Data Analysis
» Prajay Patel

8:30am **Integrating Open Educational Resources (OER) into the Chemistry Curriculum with OpenStax and Aktiv Chemistry**
JSB-357
Chaired by: Justin Weinberg

Integrating Open Educational Resources (OER) into the Chemistry Curriculum with OpenStax and Aktiv Chemistry
» Justin Weinberg, David Harris

10am **Break**

10:15am **S204: Innovations, Practices, and Challenges in Large Enrollment Laboratory Courses**
CP-103
Chaired by: Katie Gesmundo

10:15am **Introduction (S204)**
» Katie Gesmundo

Continued from **Wednesday, 31 July**

10:21am **How Much Does Lab Matter? Effect of Lab Enrollment on DFW Rates in a General Chemistry Lecture Course**
» Margaret Hershberger

10:42am **Applications of Water Treatment in a Large Enrollment General Chemistry Laboratory Course**
» Daphne Norton

11:03am **Improving Student Confidence in General Chemistry Labs Through Skill Check-Ins (SCIs)**
» Nolan Shepherd, Keying Chen, Binyomin Abrams

11:24am **Writing a Laboratory Report in Parts Instead of a Complete Assignment**
» Sara Mata

10:15am **S275: Integrating Forensic Science Courses Into the Curriculum and Growing Forensic Science Programs**
CP-111
Chaired by: David Cunningham

10:15am **Introduction (S275)**
» David Cunningham

10:21am **Challenges and Opportunities Facing a Forensic Science Program at a Regional University**
» David Cunningham, Jim McGill

10:42am **Design and Development of Discipline-based Growth Mindset and Effective Learning Strategies Modules in Gateway Chemistry Courses**
» Li Ye, Julia Y.K. Chan, Coby Zadeh, Natalia Morales, Osvaldo Rojas, Emily Pak

11:03am **Q&A Session (S275)**
» kim woodrum

11:24am **Panel Discussion (S275)**
» kim woodrum

10:15am **S164: Inside the Division of Chemical Education**
CP-139
Chaired by: Stephanie Ryan and Resa Kelly

10:15am **Introduction (S164)**
» Stephanie Ryan

10:21am **Financial Structure of DivCHED and the Finance Committee**
» Rick Moog

10:42am **Meet the Committee on Computers in Chemistry Education**
» Derek Behmke, Robert Belford, Ehren Bucholtz, Carla Karen Fortune, Jonathan Gutow

11:03am **Chemical Safety in the Classroom: The Role of the DivCHED Safety Committee**
» Steven Wietstock, Jenine Maeyer

11:24am **ACS DivCHED New Member Committee**
» Mary Beth Anzovino

10:15am **S59: Engaging Students & Curriculum Development in Large Classes**
CP-153
Chaired by: Alicia Paterno

10:15am **Introduction (S59)**
» Alicia Paterno

10:21am **Metacognitive Reporting Promotes Student Success and Instructor Beneficence in Introductory Chemistry**
» Michelle Richards-Babb, Carly Gordon, David Mersing, Trina Perrone, Betsy Ratcliff

Continued from **Wednesday, 31 July**

10:42am **Informative Utility Value Intervention: Assignments Designed to Promote Students' Personal Connections With Chemistry**
» Jessica Young, Lisa Dawood, Scott Lewis

11:03am **The Power of Scaffolding in Instruction: Using Multi-Mode Student Interviews to Understand Learning Gains and Changes in Scale Literacy**
» Allison Tomczyk, Kristen Murphy

11:24am **Q&A Session (S59)**
» kim woodrum

10:15am **S84: Active Learning in Organic Chemistry**
CP-155
Chaired by: Cathy Welder and Danielle Jacobs

10:15am **Introduction (S84)**
» Danielle Jacobs

10:21am **Using Active Learning Techniques to Foster a Growth Mindset in Organic Chemistry**
» Jennifer Chaytor

10:42am **Effects of a Flipped Classroom Model on Perceived Stress, Anxiety, and Preparedness of Students in a First Semester Organic Chemistry Course**
» Leslie Knecht, Francesca Pellegrini, Claire Landon, Aaron Heller

11:03am **Transitioning From a Lecture-Centric Format to Partially Flipped and Then Fully Flipped Formats for Organic Chemistry at a Small Liberal Arts College**
» Ian Rhile

11:24am **Q&A Session (S84)**
» kim woodrum

10:15am **S244: Research Investigations in STEM Identity in Chemistry Learning Environments**
CP-179
Chaired by: Justin Carmel

10:15am **Introduction (S244)**
» Justin Carmel

10:21am **Recognition Experiences and Chemistry Identity of Women of Color**
» Norda Stephenson, Ursula Abelsen

10:42am **The Impacts of a Nuclear Science Internship Program on Students' Identity Construction, Self-Efficacy, and Career Aspiration**
» Kiera Wright, Resa Kelly

11:03am **Application of the PISQ-5d survey: Comparing and contrasting written responses of PISQ-5d questions based on STEM Identity**
» Cameron Bechard, Abigail Castillo, Jackson Ellis, Tamra Legron-Rodriguez, Nicole Lapeyrouse

11:24am **Undergraduate students' self-perception regarding their STEM professional futures**
» Macayla Barnett, Cameron Bechard, Tamara Legron-Rodriguez, Nicole Lapeyrouse

10:15am **S76: Mixing It Up With Informal Chemistry Education: An Unconventional Chemistry Circus - Where Formal Meets Fun!**
CP-183

10:15am **Introduction (S76)**
» Matt Queen

10:21am **Chemistry Under The Big Top**
» Matt Queen

Continued from **Wednesday, 31 July**

10:42am **The Chemistry and Technique of Formulating Organic Incense in an Undergraduate Chemistry Laboratory**
» Viniti Gupta, Sangeeta Kumar, Manisha Nigam

10:15am **S131: Engaging Students using the Chemistry of Beverage Alcohol**
CP-201
Chaired by: Leonard Demoranville

10:15am **Introduction (S131)**
» April French

10:21am **Brewing up a Program: The Development and Implementation of an Undergraduate Major in Fermentation Science at Eastern Michigan University**
» Gregg Wilmes, Taylor Heckaman, Cory Emal

10:42am **Craft Beverage Curriculum - A Duel Track Design**
» Christian Paumi

11:03am **From Beer to Boerewors: The First 10 Years of a Fermentation Sciences Program**
» Brett Taubman

11:24am **The Chemistry of Food and Drink Across the World**
» Luanne Tilstra, Fumie Sunahori

10:15am **S138: Course-based Undergraduate Research Experiences (CUREs): Assessments, Barriers and Opportunities**
CP-208
Chaired by: Diana Habel-Rodriguez and Tracy Terry

10:15am **Introduction (S138)**
» Elinor Soult

10:21am **Longitudinal Comparison of the Development of a Sense of Belonging and Science Identity for Workshop-Based Undergraduate Research Experience Students and Traditional Lab Students**
» Adrian Wierzchowski, Donald Wink

10:42am **Expanding Course-Based Undergraduate Research Experiences**
» Timothy Schroeder

11:03am **Design of Vertical CUREs in Organic Chemistry with Assessments, Challenges, and Opportunities**
» Marwa Abdel Latif

11:24am **Exploring the Effects of Course-Based Undergraduate Research Experiences (CUREs) on STEM Students with an Emphasis on Chemistry Majors: A Qualitative Analysis of Critical Reflections**
» Mahdi Ghasemi, Abigail Dingess, Chazzidy Harper, Amy Buddie, Kimberly Cortes

10:15am **S40: Communities of Practice Transforming Chemistry Education**
CP-211
Chaired by: Jeffrey Raker

10:15am **Introduction (S40)**
» Elinor Soult

10:21am **Constructing an Assessment Data-Driven Inquiry Community of Practice for General Chemistry Instructors**
» Casandra Koevoets-Beach, Morgan Balabanoff

10:42am **A Promising Role for Communities of Practice to Promote Social Interactions Associated with Chemistry Faculty Members' Adoption of Evidence-Based Instructional Practices**
» Megan Connor, Jeffrey Raker

11:03am **Faculty Influence on Transforming Chemistry Doctoral Education**
» Melissa A. Collini, Benedicta Donkor, Jordan Harshman

Continued from **Wednesday, 31 July**

11:24am **Lessons from a Cohort-Based Professional Development Workshop on Improving Chemistry Faculty Members Assessment Practices**
» Jeffrey Raker, Thomas Pentecost, Kristen Murphy

10:15am **S75: Alternative Pathways in General Chemistry: Meeting the Needs of Varied Student Populations**
CP-220
Chaired by: Rebecca Ricciardo and Kristina Proctor

10:15am **Introduction (S75)**
» Elinor Soult

10:21am **Enhancing Student Success in General Chemistry with a Focus on Diverse Approaches to Learning and Metacognitive Skill Development.**
» Clarice Kelleher, Alexsa Silva, Benjamin Turnpenny

10:42am **Meeting Students where they are – Expanding Traditional Support for Chemistry Learners**
» Anja Blecking, Leah Johnson, Barbara Lucius, Tania Mertzman

11:03am **Understanding the Impacts of a General Chemistry Adjunct Course Through a Mixed-Methods Approach**
» Abigail Hinojosa, Debjani Roy, Deseree Dufek, Charles Floyd, Jake Barer, Anne Baranger

11:24am **Parachute': Can a Rescue Course for High Failure Introductory STEM Courses Improve Student Retention?**
» Sushilla Knottenbelt, K Joseph Ho, Alisha Ray

10:15am **S31: Current Research on the Undergraduate Chemistry Laboratory**
CP-222
Chaired by: Nikita Burrows

10:15am **Introduction (S31)**
» April French

10:21am **Chemistry Identity and Perceptions of Science Practice Proficiency in Introductory Chemistry Labs**
» Deborah Santos, Riona Soosaidas, Morgan Polk, Ryan Wiebold

10:42am **Characterizing Laboratory Experiments used in Undergraduate Analytical Chemistry Courses for Opportunities of Engagement in Science Practices and Inquiry**
» Andrea Van Wyk, Ardith Bhinu, Kimberley Frederick, Marya Lieberman, Renée Cole

11:03am **Shifts in Chemical Thinking in Labs?!? The Role of Social Interactions and Simulations**
» Julia Eckhard, Ira Caspari-Gnann

10:15am **S57: Art and Archaeology as a Vehicle to Teach Core Chemical Concepts**
CP-287
Chaired by: Kevin Braun

10:15am **Introduction (S57)**
» Kevin Braun, Kristin Labby, Annelise Gorensek-Benitez

10:21am **Conservation science as a tool to enhance student learning**
» Joan Esson

10:42am **From Pigments to X-Rays: Exploring Chemistry and Art in an Interdisciplinary Classroom**
» Amanda Bowman

11:03am **Ancient Art and Archaeology as Part of an Introductory Chemistry Course**
» Mary Virginia Orna, Patricia Smith

Continued from **Wednesday, 31 July**

11:24am **An Experimental and Case Studies Approach to Teaching Chemical Principles Using Applications in Archaeology and Art**
» Christopher Vyhnal

10:15am **S42: Scaffolding and Assessing Professional Skills and Science Practices in the Undergraduate Curriculum: Addressing the 2023 ACS Guidelines**
CP-297
Chaired by: Regina Frey

10:15am **Introduction (S42)**
» Regina Frey

10:21am **SPIRAL Experiments: A Model for Intentionally Incorporating Skills in the Laboratory**
» Ashley Mahoney, Michael Garoutte, Craig Teague, Timothy Herzog

10:42am **Multidimensional Learning as a Framework for Achieving Constructive Alignment in General Chemistry**
» Sam Pazicni, Jaclyn Trate, Stephen Block

11:03am **TEaMS-UR: Implementing Team Science and Professional Skills into Organic Chemistry**
» Evelyn Boyd, Joi Walker

11:24am **A Career Development Model and Evaluative Toolkit in Action: Impacting Undergraduate and Graduate Student Professional Identity Development and IDP Use**
» Corrie Kuniyoshi, Nancy Bakowski

10:15am **S271: Pedagogical Innovations for Upper Division Labs**
JSB-103
Chaired by: Marie van Staveren

10:15am **Introduction (S271)**
» Marie van Staveren

10:21am **Using In-Video Quizzes and Steps Recorder for Teaching Instrument Use.**
» David Peitz

10:42am **The Chemistry of Color: An Advanced Capstone Lab Experience**
» Douglas Mulford

11:03am **Designing the Undergraduate Integrated Lab Course for Chemistry Majors to Incorporate Green Chemistry Principles: Extraction and Purification of Lycopene from Tomatoes and Investigation of Its Antioxidant Properties.**
» Ajay Mallia

11:24am **An Inorganic Lab Experiment Requiring Students to Synthesize and Characterize a Transition Metal Compound Without Any Instructor Direction**
» BJ Yoblinski

10:15am **S174: Disrupting Grading**
JSB-121
Chaired by: Clarissa Sorensen-Unruh and Theodore Alivio

10:15am **Introduction (S174)**
» April French

10:21am **Revitalizing Student Involvement in Post-Pandemic Chemistry Classroom: The Role of Specifications Grading in Large Introductory Chemistry Courses**
» Shuai Sun

10:42am **Outcomes from a (mostly) Department-wide Adoption of Standards-Based Grading (SBG) and the CLUE Curriculum**
» Dawn Del Carlo, Laura Strauss

Continued from **Wednesday, 31 July**

11:03am **Standards-based grading in GenChem with LMS quizzes and ALEKS**
» John Farrar

11:24am **Discussion (S174)**
» kim woodrum

10:15am **S74: Engaging Students in Physical Chemistry**
JSB-213
Chaired by: Craig Teague

10:15am **Introduction (S74)**
» Craig Teague

10:21am **Adding a CURE-Like Experience to the Physical Chemistry Laboratory: Adsorption as a Flexible Framework**
» Andrew DeJarnette, Michael McGuire, Britta Schwartz, Jacq Vanoni, Kimberly Lawler-Sagarin

10:42am **Honk if you passed P-Chem... and enjoyed it!**
» Kelly Lancaster

11:03am **A Mass Spectrometry Experiment on the Physical Chemistry of Fragmentation**
» David Keifer, Jose Juncosa

11:24am **The myriad positive impacts of Smart Worksheets on laboratory classes, quantitative chemistry methods and physical chemistry courses**
» Dudley Shallcross, Bill Heslop, Iain Thistlethwaite

10:15am **S267: Chemistry Education Research: Graduate Student Research Symposium**
JSB-321
Chaired by: Michelle Herridge

10:15am **Introduction (S267)**
» Elinor Soult

10:21am **Why Do They Do What They Do? The drivers of learning assistant facilitation practices**
» Nicolette Maggiore, Jessica Karch, Vesal Dini, Ira Caspari-Gnann

10:42am **Reflective Practice of Undergraduate Learning Assistants (ULAs) and Graduate Teaching Assistants (GTAs) Using the Vitruvian Model of Reflective Practice (VMRP)**
» Marjan Roshandel, Ethan Cote, Christopher Randles

11:03am **Mindful Teaching: Identifying how graduate teaching assistants support undergraduates' metacognition in introductory chemistry**
» Leslie Bolda, Shaun Vecera, Renée Cole

11:24am **Exploring the Nature of STEM Instructors' Written Reflections About Challenging Teaching Experiences**
» Haleigh Machost, Emily Kable, Jherian Mitchell-Jones, Brandon Yik, Marilyne Stains

10:15am **Engaging Organic Chemistry Students Using an Effective Active-Learning Approach**
JSB-108
Chaired by: Barbara van Kuiken

Engaging Organic Chemistry Students Using an Effective Active-Learning Approach
» Barbara van Kuiken

11:45am **Lunch**

2pm **S204: Innovations, Practices, and Challenges in Large Enrollment Laboratory Courses**
CP-103
Chaired by: Katie Gesmundo

2pm **Introduction (S204)**
» Katie Gesmundo

Continued from **Wednesday, 31 July**

2:06pm **Assessing Lab Skills in a Non-Majors' Organic Chemistry Lab: Lessons Learned from Developing, Implementing, and Evaluating a Digital Badge Assignment**
» Geeta Govindarajoo, Mary Emenike

2:27pm **Mitigating Variations in Students' Learning Experience in Large-Enrollment Organic Lab Courses**
» Rachael Karugu

2:48pm **Streamlining Organic Chemistry Lab Report Grading for Teaching Assistants Using Canvas Rubrics**
» Ash Winkler, Christy Bagwill, Kelsey Schlund

3:09pm **Implementing hierarchical structures and leadership skills for student workers**
» Alan Chant

2pm **S103: Opportunities from AACT: Programs and Professional Learning**
CP-111
Chaired by: Jennifer Fees and Jeramy DeBry

2pm **Introduction (S103)**
» Jennifer Fees

2:06pm **Incorporating Science and Engineering Practices into Classroom Activities**
» Jeramy DeBry

2:27pm **The ChemClub Program**
» Jennifer Fees, Dorothy Holley

2:48pm **Science Coaches Program**
» Pradip Misra

3:09pm **Incorporating American Association of Chemistry Teachers (AACT) multimedia resources into your chemistry curriculum**
» Jeramy DeBry

2pm **S163: ChatGPT in the Classroom: Empowering Educators with AI**
CP-114
Chaired by: Corey Beck

2pm **Introduction (S163)**
» Elinor Soult

2:06pm **The Evolution of Technology in Education: Unraveling the Potential of Artificial Intelligence**
» Caleb Evans

2:27pm **Can't Fight the Machine: Using Generative AI in Upper-Division Writing-Intensive Chemistry Courses**
» Steve Mang

2:48pm **Innovative Integration of ChatGPT in Chemistry Education: Designing Law and Order Style Lab for GOB Students**
» Sara Drenkhahn-Weinaug

3:09pm **Illuminating Understanding: Leveraging AI to Clarify the Muddiest Points in Large Classrooms**
» Matt Stoltzfus

2pm **S164: Inside the Division of Chemical Education**
CP-139
Chaired by: Stephanie Ryan and Resa Kelly

2pm **Introduction (S164)**
» Stephanie Ryan

2:06pm **Passer Award Committee Keeps Alive the Vision of Dorothy and Moses Passer**
» Daniel Albert, Niina Ronkainen

Continued from **Wednesday, 31 July**

2:27pm **Taming Communication: CHED Public Relations Committee**
» Clarissa Sorensen-Unruh

2:48pm **Life Before College**
» Roxie Allen

3:09pm **Committee on Chemistry in Two-Year Colleges: Building Community for First- and Second Year College Chemistry Education**
» Laura Anna, Kenneth Friedrich

2pm S84: Active Learning in Organic Chemistry

CP-155
Chaired by: Cathy Welder and Vince Maloney

2pm **Introduction (S84)**
» Vince Maloney

2:06pm **Beyond A-B-C-D: Opening Up New Possibilities for Clicker Engagement in Organic Chemistry Using Nearpod**
» John Milligan

2:27pm **First Few, Last Few: Engaging Students in Organic Chemistry**
» Jenny Vu

2:48pm **Game Based Active Learning in Organic Chemistry**
» Kristen Barrett

3:09pm **Teaching Organic Chemistry: Pushing the Limits With Chemdraw-Direct**
» Sreekumar Pankajakshan

2pm S244: Research Investigations in STEM Identity in Chemistry Learning Environments

CP-179
Chaired by: Justin Carmel

2pm **Introduction (S244)**
» Justin Carmel

2:06pm **"I Feel I Live Two Lives" - Transgender Chemistry Graduate Students Navigating Tension Between Trans and STEM Identities**
» Michelle Nolan, Isaac Blythe, Paulette Vincent-Ruz

2:27pm **Navigating the hidden curriculum: Latine undergraduate students' science identity development**
» Danielle Maxwell, Jorge Rivera-Colón, Paulette Vincent-Ruz, Ginger Shultz

2:48pm **Structural Equation Model Predicting Undergraduate Chemistry Student Science Career Choice from Scientific Values, Identity, and Self-Efficacy**
» Regis Komperda, Abel Sekone

2pm S194: Trends in GOB Chemistry

CP-201
Chaired by: Corina Brown and Laura Frost

2pm **Introduction (S194)**
» Corina Brown

2:06pm **"WDWC" Why Do We Care?**
» William Urban

2:27pm **Framing GOB chemistry content using medical case studies**
» Steve Cessna

2:48pm **Exploring student (dis)connections between vocabulary and particle-level representations**
» Melody Jewell

3:09pm **GOB Chemistry topics: Beyond integration**
» Corina Brown

Continued from **Wednesday, 31 July**

2pm **S138: Course-based Undergraduate Research Experiences (CUREs): Assessments, Barriers and Opportunities**
CP-208
Chaired by: K Joseph Ho and Diana Habel-Rodriguez and Tracy Terry

2pm **Introduction (S138)**
» Elinor Soult

2:06pm **Assessment and Grading Strategies for CUREs**
» K Joseph Ho

2:27pm **CUREs in the Classroom and Laboratory at Alabama State University**
» Harvey Hou

2:48pm **Course-based Research Experiences for the High School Curriculum: Navigating Barriers and Leveraging Opportunities**
» Tracy Terry

3:09pm **A Preliminary Report of a Community CURE Based on Catechol Oxidases**
» Kari Stone, Kyle Grice

2pm **S40: Communities of Practice Transforming Chemistry Education**
CP-211
Chaired by: Jeffrey Raker

2pm **Introduction (S40)**
» Elinor Soult

2:06pm **Results of the 2021-23 Active Learning in Organic Chemistry Workshops and Faculty Learning Communities**
» Justin Houseknecht, Alexey Leontyev, Jennifer Muzyka, Cathy Welder

2:27pm **Aurora University Noyce Program: Recruiting STEM Teachers and Cultivating a Community**
» Chetna Patel, Alma Rodriguez Estrada, Lindsey Hill, Aubrey Southall

2:48pm **The Use of AI to Grade Open-Ended Questions in a Large Enrollment Lab Course**
» John Wiginton, Olivia Harwick, Jason Pearson

2pm **S75: Alternative Pathways in General Chemistry: Meeting the Needs of Varied Student Populations**
CP-220
Chaired by: Rebecca Ricciardo and Kristina Proctor

2pm **Introduction (S75)**
» Elinor Soult

2:06pm **Implementing an Introductory Chemistry Course as a Tool for Bridging the Knowledge Gap for General Chemistry**
» Alicia Paterno

2:27pm **Design, Evolution, and Evaluation of a General Chemistry Bridging Course**
» Scott Reid

2:48pm **Student Preparedness for General Chemistry 1 Following a Preparatory Course at Saint Louis University.**
» Natalie R. Schleper

3:09pm **Alternative pathway to General Chemistry I at UTSA**
» Blain Mamiya, Joyce Macalling, Hadi Arman, Mark Davidson, Sarah Oerther

2pm **S31: Current Research on the Undergraduate Chemistry Laboratory**
CP-222
Chaired by: Nikita Burrows

2pm **Introduction (S31)**
» April French

Continued from **Wednesday, 31 July**

2:06pm **Chemistry Laboratory Creation Through Backward Design Principles**
» Kelly Neiles, Kimberley Frederick, Maury Howard, Daniel Scott, Rebecca Hunter

2:27pm **Student Explanations of Chemical Reactions in Organic Chemistry at the Macroscopic and Symbolic Levels**
» Isaiah Nelsen, Scott Lewis

2:48pm **Revealing Students' Learning and Experience in a Fluorescence Laboratory in General Chemistry**
» Mustafa Demirbuga, Donald Wink

3:09pm **Climbing the Ladder: Vertical Integration of Lab Skills Badges in the Curriculum**
» Mary Ross, James Dunne

2pm S57: Art and Archaeology as a Vehicle to Teach Core Chemical Concepts

CP-287
Chaired by: Kevin Braun

2pm **Introduction (S57)**
» Kevin Braun, Kristin Labby, Annelise Gorensek-Benitez

2:06pm **Integrating an Inquiry-Based Chemistry and Art Travel Course for Non-Science Majors into the Liberal Arts Curriculum**
» Christine Theodore

2:27pm **Developing intrapersonal, interpersonal, and creative thinking skills through a first-year seminar style course on the interrelationship between art and science**
» Pamela Lundin

2:48pm **A Chemical Imaging Science Course at the Interface of Art, Medicine, and Astronomy**
» Erich Uffelman, Evan Robyns, Alyssa Cirrincione, Kelcie Comisac

3:09pm **Unraveling a museum textile mystery with 'Chemistry of Art' students**
» Gregory Smith, Mark Vitha, Victor Chen, Amanda Holden

2pm S72: Re-envisioning Grading and Assessments for Enhanced Student's Learning Experience

JSB-121
Chaired by: Marwa Abdel Latif

2pm **Introduction (S72)**
» Marwa Abdel Latif

2:06pm **Alternative Grading Strategies in Organic Chemistry: A Journey**
» Matthew Mio

2:27pm **Student Perspectives on Two-Stage Collaborative Exams in Introductory Chemistry**
» Elizabeth McGinitie, Brian Rempel, James Kariuki, Hope Zimmerman, Tyler Weenink, Mia Spreen

2:48pm **Reforming the Assessment Structure of an Introductory Biochemistry Course: Nontraditional Grading for our Future Healthcare Professionals Who Still Need Traditional Grades**
» Didem Vardar Ulu

3:09pm **Ditch the Lab Reports! Adopt Digital Badges to Certify your Students' Lab Skill Mastery**
» Isabelle Lagadic

2pm S74: Engaging Students in Physical Chemistry

JSB-213
Chaired by: Craig Teague

2pm **Introduction (S74)**
» Elinor Soult

2:06pm **Towards Authentic Laboratory Activities in Physical Chemistry**
» Kristi Closser

Continued from **Wednesday, 31 July**

2:27pm **Where does ambiguity end and certainty begin in the pursuit of identifying an uknown artist pigment**
» Samantha Glazier

2:48pm **Developing and utilizing Student-Generated Mathematica Demonstrations in Physical and General Chemistry Courses**
» Heidi Hendrickson, Theresa Chua, Vedit Venkatesh, Tracie Addy

3:09pm **The 2-D fluorescence playground**
» David Gardner

2pm **S267: Chemistry Education Research: Graduate Student Research Symposium**
JSB-321
Chaired by: Michelle Herridge

2pm **Introduction (S267)**
» Elinor Soult

2:06pm **Grading With Artificial Intelligence in General Chemistry Lab I**
» Olivia Harwick, John Wiginton, Jason Pearson

2:27pm **Exploring Experiences and Perspectives in the Chemistry Community**
» Devin Pontigon

2:48pm **Focus Group Discussions of Scientific Information Literacy in Central Florida's K-12 Classrooms**
» Matilynn Lam, Christopher Randles

2pm **Do we test what we want to test?: From learning outcomes to an assessment plan to using assessment results to inform classroom and programmatic targets**
JSB-108
Chaired by: Jaclyn Trate

Do we test what we want to test?: From learning outcomes to an assessment plan to using assessment results to inform classroom and programmatic targets
» Jaclyn Trate, Kristen Murphy, David Schreurs, Chrystal Bruce, Thomas Pentecost, Melissa Reeves, Patricia Kreke, Olga Michels, Sachin Nedungadi

2pm **The POGIL Project Workshop: Teaching computational chemistry using Chemcompute**
JSB-231
Chaired by: Melissa Reeves

The POGIL Project Workshop: Teaching computational chemistry using Chemcompute
» Melissa Reeves, Laine Berghout

2pm **The POGIL Project Workshop: Development and Implementation of Guided Inquiry Experiments for Physical Chemistry**
JSB-244
Chaired by: Rob Whitnell

The POGIL Project Workshop: Development and Implementation of Guided Inquiry Experiments for Physical Chemistry
» Rob Whitnell, Jordan Beck

2pm **OK I know about active learning but how do I do it?**
JSB-337
Chaired by: Scott Donnelly

OK I know about active learning but how do I do it?
» Scott Donnelly, Michelle Brooks

2pm **Introduction to IONiC / VIPEr: Using and Sharing Inorganic Chemistry Education Resources**
JSB-347
Chaired by: Anne Bentley

Continued from **Wednesday, 31 July**

Introduction to IONiC / VIPEr: Using and Sharing Inorganic Chemistry Education Resources
» Amanda Reig, Meghan Porter, Sarah Shaner, Catherine McCusker, Anne Bentley

2pm **Enhancing Assessment of Student Learning in Your CURE**
JSB-357
Chaired by: Erika Offerdahl

Enhancing Assessment of Student Learning in Your CURE
» Erika Offerdahl, Diane Ugwu

3:30pm **Break**

3:45pm **S204: Innovations, Practices, and Challenges in Large Enrollment Laboratory Courses**
CP-103
Chaired by: Katie Gesmundo

3:45pm **Introduction (S204)**
» Katie Gesmundo

3:51pm **The Use of AI to Grade Open-Ended Questions in a Large Enrollment Lab Course**
» John Wiginton, Olivia Harwick, Jason Pearson

4:12pm **Lab Teaching and Learning at Scale: Building Effective Learning Experiences Using Technology Purpose-Built for Large Lab Courses**
» James Caras, Serenity Desmond, Marybeth Miller

3:45pm **S163: ChatGPT in the Classroom: Empowering Educators with AI**
CP-114

3:45pm **Introduction (S163)**
» Elinor Soult

3:51pm **Chemical Superpowers with Wolfram GPT**
» Jason Sonnenberg

4:12pm **Generative AI in Chemistry Online Homework Systems**
» Jessica Moro, Chris Hess, Tim Wilson

3:45pm **S164: nside the Division of Chemical Education**
CP-139

3:45pm **Introduction (S164)**
» Stephanie Ryan

3:51pm **DivCHED Potpourri**
» Kimberly Cortes

4:12pm **Q&A (S164)**
» Stephanie Ryan

3:45pm **S231: Active Learning in the Organic Chemistry Laboratory**
CP-153
Chaired by: Benjamin Burlingham

3:45pm **Introduction (S231)**
» Sara Mata

3:51pm **Graduate Student Perspectives on Starting Up a New CURE**
» Michaela Loveless, Amanda Morgan, Benjamin Burlingham, Amar Flood

4:12pm **A sequence of linked experiments for teaching and reinforcing laboratory techniques in undergraduate organic lab courses**
» Kasey Clear

4:33pm **Bring Paper Analytical Device to Organic Chemistry Lab: Colorimetric Tests to Identify Substandard and Falsified Drugs**
» Zhutian Zhang, Rachel Roller, Katherine Barrett, Marya Lieberman

Continued from **Wednesday, 31 July**

4:54pm **Development and implementation of new laboratory experiments for the organic chemistry course focused on the synthesis of ferrocenyl derivatives**
» Raul Rodriguez-Berrios, Uriel Rivera-Gonzalez, Ulises Maldonado-Rivas, Guillermo Narvaez-Lozano, Ricardo Perez-Martinez

3:45pm **S84: Active Learning in Organic Chemistry**
CP-155
Chaired by: Cathy Welder and Vince Maloney

3:45pm **Introduction (S84)**
» Vince Maloney

3:51pm **Active Learning Exercises With 3D Printed Space-Filling Molecular Models**
» Ava Rocio, Nicole Nolan, Jeremy Klosterman

4:12pm **Connecting Organic Chemistry Fundamentals to Real-World Pharma Through Active Learning Review Modules**
» Robert Perkins

4:33pm **A Picture Is Worth a Thousand Words: Leveraging Concept Mapping to Help Students Dissect the Complexities of Isomerism.**
» Janell Mahoney

4:54pm **Student Involvement in Learning Organic Chemistry**
» Christine Hermann

3:45pm **S244: Research Investigations in STEM Identity in Chemistry Learning Environments**
CP-179
Chaired by: Justin Carmel

3:45pm **Introduction (S244)**
» Justin Carmel

3:51pm **Impact of the Phone A STEM Professional assignment on undergraduate chemistry students' sense of belonging and persistence**
» Sara Martin, Melissa Schen, Kyla Babics

4:12pm **Learning Assistants in Science Classrooms and Students' Science Identity**
» O. Theresa Ayangbola, Katy Hosbein

3:45pm **S194: Trends in GOB Chemistry**
CP-201
Chaired by: Corina Brown

3:45pm **Introduction (S194)**
» Corina Brown

3:51pm **Exploring Interdisciplinary Knowledge Integration using Systems Thinking and Mechanistic Reasoning frameworks**
» Vinutha Ravinageswaran, Maria Oliver-Hoyo

4:12pm **Gamifying the Math Content in a GOB Course**
» Breeyawn Lybbert

4:33pm **Teaching metacognition, effective learning practices, and strategies for enhancing focus with short pre-class videos and in-class quizzes.**
» Doug Schirch

4:54pm **Panel Discussion (S194)**
» kim woodrum

3:45pm **S138: Course-based Undergraduate Research Experiences (CUREs): Assessments, Barriers and Opportunities**
CP-208
Chaired by: K Joseph Ho and Tracy Terry and Diana Habel-Rodriguez

3:45pm **Introduction (S138)**
» Elinor Soult

Continued from **Wednesday, 31 July**

3:51pm **Experiences Incorporating a Research-Based NMR Activity Into the General Chemistry Lab**
» Janice Hall Tomasik, Cassie Gardyszewski, Kyle Biegas, Milah Curry, Jordan Kobielus, Anja Mueller, Benjamin Swarts, Itzel Marquez, Bradley Fahlman

4:12pm **Chalcones for SARS-CoV2 in Organic Chemistry Lab CURE**
» Jennifer Muzyka

4:33pm **A Small First-Semester General Chemistry CURE to Help Chemistry Majors Gain Confidence in Pursuing Research Opportunities at a Large R1 Institution**
» Angela Bischof

4:54pm **The BASIL Biochemistry CURE: Fundamental Biochemistry Concepts Taught Through the Analysis of Proteins of Unknown Function.**
» Stephen Mills, Jon Dattelbaum, Anya Goodman, Bonnie Hall, Julia Koeppe, Ashley McDonald, Erika Offerdahl, Suzanne O'Handley, Michael Pikaart, Rebecca Roberts, Arthur Sikora, Paul Craig

3:45pm **S258: Teaching and Learning in the AI Revolution**
CP-211
Chaired by: Jennifer Garcia Ramos

3:45pm **Introduction (S258)**
» Jennifer Garcia Ramos

3:51pm **Teaching & Learning Theories in the AI Revolution**
» Jennifer Garcia Ramos, Zakiya Wilson-Kennedy

4:12pm **Teaching and Learning with ChatGPT in General Chemistry**
» Leslie Butler, Jennifer Garcia Ramos, Zakiya Wilson-Kennedy

4:33pm **Touch of AI on Chemistry Visuals: Chemistry Preservice Teachers' Experiences and Reflections on Visuals Generated by Artificial Intelligence**
» Sevil Akaygun

4:54pm **Generative AI: Student Perspectives and Expectations**
» Chloe Sells, Michelle Herridge

3:45pm **S75: Alternative Pathways in General Chemistry: Meeting the Needs of Varied Student Populations**
CP-220
Chaired by: Rebecca Ricciardo

3:45pm **Introduction (S75)**
» Elinor Soult

3:51pm **On-line Homework in General Chemistry: Friend or Foe?**
» Kristina Proctor

4:12pm **Dual-Enrollment Introductory Chemistry for Rural School Systems**
» Kevin Revell

4:33pm **Introducing Math in Introductory Chemistry**
» Deborah Rosenthal

4:54pm **Group Discussion (S75)**
» kim woodrum

3:45pm **S31: Current Research on the Undergraduate Chemistry Laboratory**
CP-222
Chaired by: Nikita Burrows

3:45pm **Introduction (S31)**
» April French

Continued from **Wednesday, 31 July**

3:51pm **Development of Pseudoscience-Based Independent Study Research Projects at a Regional University Satellite Campus**
» James Kabrhel

4:12pm **Teaching Research Skills to Undergraduates via a Novel Rotations Model**
» Stephanie Poland, Ross Weatherman, Rebecca DeVasher, Fumie Sunahori

4:33pm **Grading with Artificial Intelligence in General Chemistry Lab I**
» Olivia Harwick, John Wiginton, Jason Pearson

3:45pm **S57: Art and Archaeology as a Vehicle to Teach Core Chemical Concepts**
CP-287
Chaired by: Kevin Braun

3:45pm **Introduction (S57)**
» Kevin Braun, Kristin Labby, Annelise Gorensek-Benitez

3:51pm **The Chemistry of Artist's Materials: Using Historical Dye Extraction Procedures and the Identification of Unknown Dyes Via Photoluminescence to Teach Principles in Acid-Base Chemistry, Solubility, and Spectroscopy**
» Hannah Lant

4:12pm **Chemical Analysis of Simulated Ancient Ceramics as a Final Project in General Chemistry**
» Donald Storer

4:33pm **Chemistry of Tattoos: Employing the Art on Skin to Convey Chemistry Concepts**
» Geeta Govindarajoo

4:54pm **Q&A Session (S57)**
» Kevin Braun, Kristin Labby, Annelise Gorensek-Benitez

3:45pm **S72: Re-envisioning Grading and Assessments for Enhanced Student's Learning Experience**
JSB-121
Chaired by: Marwa Abdel Latif

3:45pm **Introduction (S72)**
» Marwa Abdel Latif

3:51pm **Implementing an Exam Retake Grading System in Organic Chemistry**
» Alexis Courtney

4:12pm **The DUCKs System: Laboratory Skills Assessments Linking First-Year Chemistry and Biology Courses**
» Mary Ross, Tim Sonbuchner

4:33pm **Targeting Students at the Cusp of the Hyperpersistent Zone: Implementation of Metacognitive and Utility-Value Assessments in a First Semester General Chemistry Course**
» Jessica Siemer

4:54pm **Never out of Style: Improving Student Learning Through Learner-Focused Assignment Design**
» Bridget Trogden, Abby Boyd

3:45pm **S74: Engaging Students in Physical Chemistry**
JSB-213
Chaired by: Craig Teague

3:45pm **Introduction (S74)**
» Elinor Soult

3:51pm **Connecting Molecular Orbital Theory to UV-Vis Absorption for the Particle in a Box Experiment**
» Prajay Patel

4:12pm **Opening the Black Box: Density Functional Theory by Hand**
» Jesse Tye

Continued from **Wednesday, 31 July**

4:33pm **Structuring Student Developed Procedures and Analysis in the Physical Chemistry Laboratory**
» Daniel Albert

4:54pm **Q&A Session (S74)**
» Craig Teague

3:45pm **S267: Chemistry Education Research: Graduate Student Research Symposium**
JSB-321
Chaired by: Michelle Herridge

3:45pm **Introduction (S267)**
» Elinor Soult

3:51pm **Information Literacy in the Science Classroom: A national survey of the United States K-12 science teachers**
» Matilynn Lam, Christopher Randles

4:12pm **Interviews with Undergraduate Chemistry Faculty: Exploration of perceptions and implementation of alternative grading**
» Ariana McDarby, Megan Gibas, Alexey Leontyev

4:33pm **General Chemistry Instructors' Perceptions of Research-Based Assessment Tools**
» Emily Kable, Ying Wang, Lu Shi, Marilyne Stains

4:54pm **Chemistry as a Discipline of Practice: Rubrics to assess and provide feedback on science practices**
» Vinay Bapu Ramesh, Renée Cole

Thursday, 1 August

7am **Breakfast**
Champions Kitchen, inside Gatton Student Center

8:30am **S106: AI and Machine Learning as Agents of Change in Chemistry Education**
CP-114
Chaired by: Serenity Desmond

8:30am **Introduction (S106)**
» Elinor Soult

8:36am **The Frontier is Here: Bringing AI/ML and Automated Synthesis to Undergraduate Labs**
» Nolan Green, James Planey, Serenity Desmond, Martin Burke

8:57am **Using ChatGPT to Support Lesson Planning for Historical Experiments in General Chemistry**
» Ted Clark, Matt Queen, Matthew Fhaner, Matthew Stoltzfus

9:18am **Bridging Research and Learning in AI Chemistry with the Digital Molecule Maker**
» James Planey, Sabrina Abdulla

9:39am **Stemble: Leveraging Artificial Intelligence to Accelerate Learning and Empower Educators in Chemistry**
» Jason Pearson

8:30am **S231: Active Learning in the Organic Chemistry Laboratory**
CP-153
Chaired by: Sara Mata and Benjamin Burlingham

8:30am **Introduction (S231)**
» Sara Mata

Continued from **Thursday, 1 August**

8:36am **Alkylation of Anisole using Alkenes and Alcohols as Electrophile Precursors**
» John Struss

8:57am **Writing in Authentic Science Genres in the Organic Chemistry II Laboratory to Improve Student Perceptions of Themselves as Writers and Belonging in STEM**
» Rebecca Black

9:18am **Measuring engagement in the laboratory through multi-step synthesis and in its lecture through ungraded participation**
» Sara Mata

9:39am **Recognize Me?: Evaluation of an Inquiry-Based, Unknown Identification Laboratory Using Student-Synthesized Compounds**
» Margaret Meadows

8:30am **S84: Active Learning in Organic Chemistry**
CP-155
Chaired by: Cathy Welder and Matt Leathen

8:30am **Introduction (S84)**
» Matt Leathen

8:36am **Mastery Quizzes for Essential Topics in Organic Chemistry**
» Matt Leathen

8:57am **Specifications Grading: Initial Implementation Results and Impressions**
» Richard Macri

9:18am **Incorporating a Variety of Active Learning Strategies in an Elementary Organic Chemistry Course Creates a Pathway for Student Success**
» Thomas Greenbowe

9:39am **Structure, Structure, Structure: Development of 1H and 13C NMR and GCMS OChem Active Learning Modules**
» Scott Donnelly

8:30am **S261: STEM Outreach**
CP-183
Chaired by: Jacquelyn Cole

8:30am **Introduction (S261)**
» Matt Queen

8:36am **Community Outreach in Chemistry - How to Get Started**
» Angela Miller

8:57am **Volunteer engagement, training and recognition in outreach to the community: how do I find resources?**
» Lori Stepan

9:18am **Undergraduate Student Practitioners' Confidence in Participating in Chemistry Outreach Activities**
» KatieMarie Magnone, Merryn Cole, Justin Pratt

9:39am **Grab-a-Lab STEAM Tote Kits**
» Jacquelyn Cole, Haley Albright, Sytil Murphy

8:30am **S194: Trends in GOB Chemistry**
CP-201
Chaired by: Corina Brown and Ann Murkowski

8:30am **Introduction (S194)**
» Corina Brown

8:36am **Strategies to encourage and evaluate learning in a one semester GOB course.**
» Brenda Miller

8:57am **Implementation of Specifications Grading in a One-Semester GOB Course**
» Kevin Welch

Continued from **Thursday, 1 August**

9:18am **Creativity in an (Inter)Active GOB Classroom: 7:30 am Chemistry Class Was Never Such Fun!**
» Sheryl Mason

9:39am **Students as Partners (SaPs) and Learning Assistants (LAs): Valuable partners in the quest to promote student engagement and learning in a large enrollment General, Organic, and Biological (GOB) Chemistry course.**
» Mona Maalouf

8:30am **S138: Course-based Undergraduate Research Experiences (CUREs): Assessments, Barriers and Opportunities**
CP-208
Chaired by: K Joseph Ho and Tracy Terry and Diana Habel-Rodriguez

8:30am **Introduction (S138)**
» Elinor Soult

8:36am **Research Spine: Towards Building Future Leaders and Innovators**
» Sesha Sridevi Alluri

8:57am **Development, Teaching, and Assessment of an Interdisciplinary Course-Based Undergraduate Research Experience (CURE) to Engage Students in STEM**
» Whitney Duim, Emily Liu

9:18am **Catalyzing Collaboration: Unveiling the Impact of Interdisciplinary Teams in the NSF SSTEM INSPIRE Program**
» wendy schatzberg

8:30am **S176: Lessons Learned as a Chemistry Lecture/Lab Coordinator**
CP-211
Chaired by: Stephanie Jones

8:30am **Introduction (S176)**
» Stephanie Jones

8:36am **Coordination of Lecture and Laboratory Courses at UTSA**
» Susan Thomas, Hadi Arman, Mark Davidson, Victoria Dougherty, Gerardo Elguezabal, Blain Mamiya, Sarah Oerther, Wei Reeves

8:57am **Formative Assessment Decisions: How Many, How Flexible, and How Well-Aligned**
» Liana Lamont, Rachel Bain, Jaclyn Trate, Jeremy Weaver

9:18am **Simplifying for Success: General Chemistry Lecture Coordination at the University of Cincinnati**
» Daniel Waddell, Megan Bucks

8:30am **S20: ChemEd X: Engaging with Contributors**
CP-220
Chaired by: Jon Holmes

8:30am **Introduction (S20)**
» Elinor Soult

8:36am **The Best (!) Order of Topics for 11 and AP Chemistry**
» Michael Jansen

8:57am **Fake science? Using current media resources to develop CER skills**
» Karen Sorensen

9:18am **Change "Do Nows" into Team Think Tank Problems**
» Kristen Drury

9:39am **Social Justice Science Issues in Your Chemistry Classroom**
» Nina Hike

8:30am **S195: Big 10 Gen Chem Labs: Advances, Innovations, and Challenges**
CP-222
Chaired by: Eric Malina

8:30am **Introduction (S195)**
» Elinor Soult

Continued from **Thursday, 1 August**

8:36am **College- and Course-level strategies for pedagogical development of undergraduate learning assistants in general chemistry labs**
» Rachel Barnard

8:57am **TA Training on Grading: Introducing "Grading Philosophy" and "Conversations with Students About Grades" sessions to incoming graduate TAs**
» Katie Gesmundo, Casandra Moisanu

9:18am **(Re)conceptualizing Laboratory Teaching Assistants' Identities-in-Practice: Insights for LTA Training and Growth toward both Equity and Excellence in General Chemistry.**
» Matt Wu, Dalyanne Hernandez-Sanchez, Cassandra Miller

9:39am **Work smarter not harder. Using automated workflows to reduce administrative workload in large-enrollment laboratory courses.**
» Angela Bischof

8:30am **S57: Art and Archaeology as a Vehicle to Teach Core Chemical Concepts**
CP-287
Chaired by: Kevin Braun

8:30am **Introduction (S57)**
» Kevin Braun, Kristin Labby, Annelise Gorensek-Benitez

8:36am **Identifying Wine Residue in Archaeological Pottery: An Advanced Undergraduate Laboratory in Archaeological Chemistry**
» Kevin Braun

8:57am **Teaching and learning about light and color with Josef Albers Interactions of Color**
» Gemma D'Ambruoso, Jennifer Shepherd

9:18am **From Pigments to Paintings: Integrating Collaborative Art Projects into the Chemistry Laboratory**
» Brian McBurnett

9:39am **Exploring Natural Dyes through Reflectance Spectroscopy**
» Annelise Gorensek-Benitez

8:30am **S203: Learning from Failure**
CP-297
Chaired by: Stephanie Myers

8:30am **Introduction (S203)**
» Stephanie Myers

8:36am **"Having a Bad Day" Test Score Mitigation Strategies**
» Stephanie Myers, Jennifer Staude

8:57am **Heeding the Lessons of Failure: Crystal Growing Edition**
» Rachel A Morgan Theall

9:18am **Inviting Failure and Rewarding Iterative Improvement in the General Chemistry Lab**
» Eli Fahrenkrug, Annelise Gorensek-Benitez, Timothy Gould, Jared Harris

9:39am **Students' Experiences with Failure in a Workshop-based Undergraduate Research Experience**
» Adrian Wierzchowski, Donald Wink

8:30am **S276: Designing and Implementing CUREs for 1st and 2nd year Chemistry Courses**
JSB-103
Chaired by: Melanie Harvey

8:30am **Introduction (S276)**
» April French

Continued from **Thursday, 1 August**

8:36am **A Course-Based Undergraduate Research Experience for a Nonmajors GOB Course at a Community College**
» Melanie Harvey

8:57am **Expanding a General Chemistry Laboratory Course Into a Research-Based Learning Environment: A More Engaging Student Learning Experience**
» Hasani Jayasinghe

9:18am **Incorporating Local Natural Resource Research Into a General Chemistry II Laboratory Curriculum**
» James Doble, Jacob Wainman

9:39am **Evaluating a Course-Based Undergraduate Research Experience for Deaf/Hard-of-Hearing Students and its Place Within the Curriculum**
» Annemarie Ross

8:30am **S72: Re-envisioning Grading and Assessments for Enhanced Student's Learning Experience**
JSB-121
Chaired by: Marwa Abdel Latif

8:30am **Introduction (S72)**
» Marwa Abdel Latif

8:36am **Assessing for Growth: Revising Evaluations to Cultivate Growth Mindset and Advance Student Success**
» Meghan Porter, Jill Robinson

8:57am **Fostering Exam Success by Providing Interactive Online learning Environments for Self-Regulated Learning**
» Florian Trauten, Carolin Eitemüller, Maik Walpuski

9:18am **The Carrot and Stick Approaches to Assessment: Points vs Percentage**
» John Suchocki

9:39am **Integrating a Negotiable Grading Scheme in General Chemistry**
» Amy Kabrhel

8:30am **S74: Engaging Students in Physical Chemistry**
JSB-213
Chaired by: Craig Teague

8:30am **Introduction (S74)**
» Elinor Soult

8:36am **Developing a Practical Guide to Curve Fitting and Experimental Data Analysis**
» Kyle Schnitzenbaumer

8:57am **Using Jupyter Notebooks in a Guided Inquiry Lab Environment**
» Melissa Reeves, Rob Whitnell, Laine Berghout, Timothy Brewer, Hanae Haouari, Sally Hunnicutt, Jessica Johnston

9:18am **Exploring Luminescent Halide Materials: An Adaptable, Inquiry-Based Lab for Short Laboratory Sessions**
» Max Wallace

9:39am **Green-er PChem labs**
» Cynthia Woodbridge, Grayson Watts

8:30am **S267: Chemistry Education Research: Graduate Student Research Symposium**
JSB-321
Chaired by: Michelle Herridge

8:30am **Introduction (S267)**
» Michelle Herridge

8:51am **Utilizing Eye-Tracking in a Chemistry Online Homework Gamification Study**
» Morgan Clark, Thomas Holme

Continued from **Thursday, 1 August**

9:12am **How General Chemistry Students Gesture About Gas Laws and Gas Molecules**
» Ashley Manning, Mike Stieff

9:33am **"I just go with what I think studying should be": General chemistry students insights on studying choices**
» Kendra Keenan, Andrew Baquero, Ebtisam Alsharabi, Justin Pratt

9:54am **Factors that Influence General Chemistry Students' Decision Making in Study Strategies**
» Pallavi Nayyar, Betul Demirdogen, Scott Lewis

8:30am **Real Intelligence (Still) Beats Artificial Intelligence: Engaging Students with Inquisitive Molecular Modeling**
JSB-108
Chaired by: Jurgen Schnitker

Real Intelligence (Still) Beats Artificial Intelligence: Engaging Students with Inquisitive Molecular Modeling
» Jurgen Schnitker

8:30am **WebMO Hands-On Workshop**
JSB-114
Chaired by: William Polik

WebMO Hands-On Workshop
» William Polik, JR Schmidt

8:30am **Chemistry with Unity**
JSB-243
Chaired by: Steven Sogo

Chemistry with Unity
» Steven Sogo, Peggy Au

8:30am **Aligning ELIPSS transferable skill rubrics with assessment needs**
JSB-337
Chaired by: Suzanne Ruder

Aligning ELIPSS transferable skill rubrics with assessment needs
» Suzanne Ruder, Juliette Lantz, Renée Cole

8:30am **Development and Implementation of a Learning Model Where Students Experience the Scientific Research Process Through Bioinformatic Protein Modeling**
JSB-347
Chaired by: Arthur Sikora

Development and Implementation of a Learning Model Where Students Experience the Scientific Research Process Through Bioinformatic Protein Modeling
» Arthur Sikora, Omar Saleh, Emily Schmitt Lavin

8:30am **Online certification courses to help experimental graduate students incorporate molecular modeling into their research**
JSB-357
Chaired by: Rachel Clune

Online certification courses to help experimental graduate students incorporate molecular modeling into their research
» Rachel Clune, Katie Dahlquist, Aisha Oza, Sriram Krishnamurthy, Mathew Halls, Michael Rauch

10am **Break**

10:15am **S106: AI and Machine Learning as Agents of Change in Chemistry Education**
CP-114
Chaired by: Serenity Desmond

10:15am **Introduction (S106)**
» Elinor Soult

Continued from **Thursday, 1 August**

10:21am **Enhancing Chemistry Instruction through Artificial Intelligence: A Case Study from Tulsa Community College**
» Luis Bello

10:42am **Integrating Machine Learning into a Chemistry Elective: No Prior Coding Experience Required**
» Bonnie Hall

11:03am **Leveraging Generative AI to Teach Effective Design of Data Visualizations**
» Benjamin Lear

11:24am **MolSSI Industrial Training Program: Connecting Innovative Minds with Industrial Skills**
» Mohammad Mostafanejad, Ashley McDonald

10:15am **S231: Active Learning in the Organic Chemistry Laboratory**
CP-153
Chaired by: Sara Mata and Benjamin Burlingham

10:15am **Introduction (S231)**
» Sara Mata

10:21am **Multi-outcome, Guided Inquiry-Based Laboratories for Introductory Organic Chemistry**
» Kylie Luska

10:15am **S84: Active Learning in Organic Chemistry**
CP-155
Chaired by: Cathy Welder and Matt Leathen

10:15am **Introduction (S84)**
» Matt Leathen

10:21am **Large Class Organic Chemistry Teaching Method Which Students Enjoy**
» Donna Nelson

10:42am **How Does That Work? A Brief Organic Reaction Mechanisms Course**
» Justine Olson, Anne Moody

11:03am **Q&A Session (S84)**
» kim woodrum

10:15am **S261: STEM Outreach**
CP-183
Chaired by: Jacquelyn Cole

10:15am **Introduction (S261)**
» kim woodrum

10:21am **Engaging your Local ACS Section in Community Outreach**
» Phil McBride

10:42am **Imaging the World: Bringing Atomic Scale Imaging to High School Students**
» Benjamin Smith, Edward Zovinka, Rose Clark, Ashley Smith-Diemler, Jessica Campbell

11:03am **Effectiveness of Hands-On Outreach Workshops on High School Students' Perception of Chemistry**
» Ajay Mallia, Patrice Bell

11:24am **A Data Driven Look at Outcomes from an Informal Science Lab Training for underserved STEM Students**
» Brandon White, Becky Mercer

10:15am **S194: Trends in GOB Chemistry**
CP-201
Chaired by: Corina Brown and Lafayette Eaton

10:15am **Introduction (S194)**
» Corina Brown

Continued from **Thursday, 1 August**

10:21am **Predicting Chemical Behavior Through Patterns in Bonding: Targeting Fundamentals Using an Online Learning Tool**
» Laura Van Dorn

10:42am **Leveraging Undergraduate Research to Reduce Equity Gaps in Gateway Chemistry Courses**
» Ann Murkowski

11:03am **Implementation of a Combined GOB Lecture/Lab Course: A Look at Student Performance and Perceptions**
» Thomas Stringfield

11:24am **Panel Discussion (S194)**
» kim woodrum

10:15am **S138: Course-based Undergraduate Research Experiences (CUREs): Assessments, Barriers and Opportunities**
CP-208
Chaired by: K Joseph Ho and Tracy Terry and Diana Habel-Rodriguez

10:15am **Introduction (S138)**
» K Joseph Ho

10:21am **Future Professors, Scientists, and Engineers: Integrating Career Development Into Undergraduate Teaching in a Classroom**
» Chao Guan

10:42am **Development of an Interdisciplinary CURE for First Year Students: Challenges and Opportunities**
» Cesar Gonzalez

10:15am **S176: Lessons Learned as a Chemistry Lecture/Lab Coordinator**
CP-211
Chaired by: Stephanie Jones

10:15am **Introduction (S176)**
» Stephanie Jones

10:21am **Ways to Improve Student and Instructional Team Experience When You Like Your Curriculum**
» Rachel Barnard

10:42am **Optimizing Coordination: Insights from Coordinating PUI Majors and Non-Majors Freshman Chemistry Courses**
» Amanda Waters, Stephanie Jones

10:15am **S20: ChemEd X: Engaging with Contributors**
CP-220
Chaired by: Jon Holmes

10:15am **Introduction (S20)**
» Elinor Soult

10:21am **Sugar and Spice and Everything Nice: Teaching a High School Food Chemistry Elective**
» Ariel Serkin

10:42am **Using interactive manipulatives to build contextual connections (with or without notebooking)**
» Nora Walsh

11:03am **Siberian Tiger Urine, Locusts Plagues, and Dying Salmon: Engaging Chemistry to Engage Students**
» Scott Donnelly

10:15am **S195: Big 10 Gen Chem Labs: Advances, Innovations, and Challenges**
CP-222
Chaired by: Eric Malina

10:15am **Introduction (S195)**
» Elinor Soult

Continued from **Thursday, 1 August**

10:21am **Insights from End-of-Semester Surveys: Common Learning Outcomes in Students' Favorite General Chemistry Laboratory Experiments**
» Bernice Opoku-Agyeman, Camila Fontes

10:42am **Examining Knowledge Retention and Attitude towards Chemistry in a Large Enrollment General Chemistry Course**
» Angelique Ithier

10:15am **S57: Art and Archaeology as a Vehicle to Teach Core Chemical Concepts**
CP-287
Chaired by: Kevin Braun

10:15am **Introduction (S57)**
» Kevin Braun, Kristin Labby, Annelise Gorensek-Benitez

10:21am **Advanced Chemistry Hiding in Pottery and Glazes**
» Ryan Coppage

10:42am **Ceramic Glazes – Adventures in the Chemistry of Art**
» Carol Ann Miderski, ChaMarra Sanar, Lorraine Laguerre, Rachel Gunsch

11:03am **Visualizing the Chemical Structures of Colorants: An Adventure in Building "Games" and Making Exhibitions**
» Patricia Jue

10:15am **S203: Learning from Failure**
CP-297
Chaired by: Stephanie Myers

10:15am **Introduction (S203)**
» Stephanie Myers

10:21am **Change the Course with Errors - Influence of Erroneous Examples on Learning Outcomes**
» Sonja Dieterich, Stefan Rumann, Marc Rodemer

10:42am **Reframing Failure: Reflecting on Learning Opportunities in Research Framework Development**
» Natalie Ulrich, Eileen Kowalski

11:03am **Panel Discussion (S203)**
» Stephanie Myers

10:15am **S276: Designing and Implementing CUREs for 1st and 2nd year Chemistry Courses**
JSB-103
Chaired by: Melanie Harvey

10:15am **Introduction (S276)**
» April French

10:21am **Design, Synthesis, and Analysis of Quorum Sensing in Vibrio: A Year-Long CURE for First and Second-Year Students.**
» Laura Brown

10:42am **Developing a Sustainable CURE Focused on Water Quality for a First-Semester, General Chemistry Course at an Open-Access Suburban Community College**
» Amanda Glass, Lori Slavin

11:03am **Panel Discussion (S276)**
» kim woodrum

10:15am **S72: Re-envisioning Grading and Assessments for Enhanced Student's Learning Experience**
JSB-121
Chaired by: Marwa Abdel Latif

10:15am **Introduction (S72)**
» Marwa Abdel Latif

Continued from **Thursday, 1 August**

10:21am **Quasi-Group Exams - How to Make Them Work in Large Science Courses**
» Rachel Branco

10:42am **Exam Performance as a Measure of Learning: Impact of Timed Pre-Exam Quizzes on Student Preparedness and Performance in General Chemistry Exams**
» Christopher DeSantis, Bhavani Balasubramanian, Mieke Peels

11:03am **Assessment in the Classroom: Perspectives of General Chemistry Students and Instructors**
» Morgan Balabanoff, Oluwatobi Odeleye

10:15am **S74: Engaging Students in Physical Chemistry**
JSB-213
Chaired by: Craig Teague

10:15am **Introduction (S74)**
» Elinor Soult

10:21am **Engaging Students in Scientific Practices Using the POGIL-PCL Framework**
» Diane Miller, Jordan Beck

10:42am **Introducing physical chemistry students to FRET using a POGIL-PCL experiment**
» Jordan Beck, Diane Miller, Andrea Carter

11:03am **Q&A Session (S74)**
» Craig Teague