

# Nebraska Conference for Undergraduate Women in Mathematics

- A** Applied Math    **B** Algebra/Coding    **C** Combinatorics    **D** Geometric Group Theory    **E** Geometry    **F** Knot Theory  
**G** Graph Theory    **H** Algebra    **M** Math Modeling    **N** Number Theory    **R** Numerical Analysis    **S** Statistics

## JANUARY 28 • SUNDAY

7:00am – 8:00am	<b>Poster Setup for Session B</b>	Regents Ballroom A (Embassy Suites)
7:00am – 10:30am	<b>Breakfast</b>	Atrium (Embassy Suites)
8:10am – 8:25am	<b>F Session 4 - The Jones Polynomial of the Generalized Half Twist</b> <i>Speaker: Rebecca Sorsen</i>	Regents Ballroom B (Embassy Suites)
8:10am – 8:25am	<b>A Session 4 - Personalization of Indexed Content via Collaborative Filtering and Topic Modeling</b> <i>Speaker: Kira Parker</i>	Regents Ballroom C (Embassy Suites)
8:10am – 8:25am	<b>A Session 4 - Effects of a Vaccine-Adverse Minority on Vaccination Dynamics</b> <i>Speaker: Olivia Conway</i>	Regents Ballroom F (Embassy Suites)
8:30am – 8:45am	<b>H Session 4 - Structure of braid graphs for reduced words in Coxeter groups</b> <i>Speaker: Emalina Bidari</i>	Regents Ballroom B (Embassy Suites)
8:30am – 8:45am	<b>S Session 4 - Quantifying the Variability of Baseflow of Watersheds For the Chesapeake Bay</b> <i>Speaker: Maddie Rainey</i>	Regents Ballroom C (Embassy Suites)
8:30am – 8:45am	<b>A Session 4 - Modeling Biological Invasion with the Reaction-diffusion Equation</b> <i>Speaker: Jessica Linton</i>	Regents Ballroom F (Embassy Suites)
8:55am – 9:35am	<b>Breakout Session 3 (see instructions under Breakouts 1 and 2)</b>	Alumni Room, Regents D/E/F, Chancellor's Rooms 1/2/3, Atrium (Embassy Suites)
9:35am – 10:15am	<b>Poster Session B</b> <i>Speakers: Gabrielle Angeloro, Luna Bozeman, Amanda Cowell, Xinying Fang, Ellen Grove, Waverly Harden, Qixuan Hou, Amy Isvik, Elisabeth Jones, Lana Kazma, Emily Kelting, Kaitlyn Lee, Laura LeGare, Courtney van der Linden, Xuan Liu, Jiayin Lu, Monica McGrath, Grace McMonagle, Anna Miller, Cailin Monroe, Bridget Mueller-Brennan, Christina Nguyen, Illyssa Overton, Andira Putri, Arsah Rahman, Toluwani Soares, Lauren Stanislaw, Margaret Steiner, Sarah Strikwerda, Claudia Sofía Carrillo Vazquez, Karlee Westrem, Melissa Wong, Mikaela Wyatt, Alexandra Yuhas, Renjun Zhu</i>	Regents Ballroom A (Embassy Suites)
10:20am – 10:35am	<b>H Session 5 - How Noncatenary Can a UFD Be?</b> <i>Speakers: Chloe Avery, Caitlyn Booms</i>	Regents Ballroom B (Embassy Suites)
10:20am – 10:35am	<b>A Session 5 - Modeling Chronic Vascular Responses Following a Major Arterial Occlusion</b> <i>Speaker: Jordan Pellett</i>	Regents Ballroom C (Embassy Suites)
10:20am – 10:35am	<b>R Session 5 - A Comparative Assessment of ETD-RDP vs NDF for Simulating Calcium Release in Heart Muscle Cells</b> <i>Speaker: Charlotte Orr</i>	Regents Ballroom F (Embassy Suites)
10:40am – 10:55am	<b>B Session 5 - <math>\Theta</math>-Twisted Involution Graphs on the Alternating Group</b> <i>Speakers: Emma Holzbach, Autumn Mortenson</i>	Regents Ballroom B (Embassy Suites)
10:40am – 10:55am	<b>A Session 5 - Physiologically Based Pharmacokinetic (PBPK) Modeling for a Persistent Chlorinated Water Contaminant</b> <i>Speakers: Lee Spence</i>	Regents Ballroom C (Embassy Suites) (1040 P St, Lincoln, NE 68508)
10:40am – 10:55am	<b>R Session 5 - Variational Data Assimilation for Neuronal Network Models</b> <i>Speaker: Jiajing Guan</i>	Regents Ballroom F (Embassy Suites)
11:00am – 11:10am	<b>Closing Remarks</b> <i>Speakers: Glenn Ledder and Christine Kelley</i>	Regents Ballroom BC (Embassy Suites)
11:10am – 11:30am	<b>Poster Session B Takedown</b>	Regents Ballroom A (Embassy Suites)
By 1:00pm	<b>Check-out Time for Hotel</b>	Lobby (Embassy Suites)

4:30pm – 4:45pm	N <b>Session 3 - Hilbert series of certain families of numerical semigroups</b> <i>Speakers: Paige Graves, Jessie Loucks</i>	Regents Ballroom B (Embassy Suites)
4:30pm – 4:45pm	A <b>Session 3 - "Helping Students Make Wise, Data-Driven Academic Decisions"</b> <i>Speaker: Lexi Rager</i>	Regents Ballroom C (Embassy Suites)
4:30pm – 4:45pm	A <b>Session 3 - Using Social Media Analytics to Predict College Basketball Tournament Upsets</b> <i>Speaker: Courtney Gale</i>	Regents Ballroom F (Embassy Suites)
4:50pm – 5:05pm	C <b>Session 3 - The Combinatorics of Zeckendorf Representations</b> <i>Speaker: Rachel Chaiser</i>	Regents Ballroom B (Embassy Suites)
4:50pm – 5:05pm	A <b>Session 3 - Efficient Communication in Distributed Machine Learning</b> <i>Speakers: Nina Galanter, Tiffany Jann</i>	Regents Ballroom C (Embassy Suites)
4:50pm – 5:05pm	A <b>Session 3 - A model of hierarchy emergence in complex networks</b> <i>Speaker: Maya Banks</i>	Regents Ballroom F (Embassy Suites)
5:10pm – 5:25pm	C <b>Session 3 - The Combinatorics of Factorial Base Representation</b> <i>Speakers: Joanne Beckford, Tina Rajabi</i>	Regents Ballroom B (Embassy Suites)
5:10pm – 5:25pm	A <b>Session 3 - A Mathematical Simulation of Bone Cell Behavior: Osteoclasts</b> <i>Speakers: Jacquelyn Chapman, Julie Phillis</i>	Regents Ballroom C (Embassy Suites)
5:10pm – 5:25pm	A <b>Session 3 - Optimization of Spectral Algorithms for Link Prediction</b> <i>Speaker: Bryn Balls-Barker</i>	Regents Ballroom F (Embassy Suites)
5:35pm – 6:15pm	<b>Breakout Session 1</b> Alumni Room, Regents D/E/F, Chancellor's Rooms 1/2/3, Atrium (Embassy Suites) Undergraduates have been assigned to breakouts. Please find your tickets at the back of your nametag. Faculty and graduate students are welcome to attend any of the breakout sessions, or have been asked to facilitate a session. See the registration desk to confirm breakout facilitation assignments. If you would like to attend different breakouts, please come to registration desk to switch your tickets with any extras that are available.	
6:20pm – 7:00pm	<b>Breakout Session 2</b> Alumni Room, Regents D/E/F, Chancellor's Rooms 1/2/3, Atrium (Embassy Suites) Undergraduates have been assigned to breakouts. Please find your tickets at the back of your nametag. Faculty and graduate students are welcome to attend any of the breakout sessions, or have been asked to facilitate a session. See the registration desk to confirm breakout facilitation assignments. If you would like to attend different breakouts, please come to registration desk to switch your tickets with any extras that are available.	
7:00pm – 7:15pm	<b>Poster Session A Takedown</b>	Regents Ballroom A (Embassy Suites)
7:15pm – 9:00pm	<b>Pizza Dinner</b> <i>Featured Speakers: Alissa Crans, Tara Fife, Cynthia Flores, Mary Hegemann, Samantha Hill, Su Ji Hong, Christine Klymko, Casey Necheles, Anisah Nu'Man, Catherine Paolucci, Jill Pipher, Emily Price, Elizabeth Russell, Kristen Savary, Molly Stubblefield, Irena Swanson, Maggy Tomova, Charlotte Ure</i> Additional hosts are listed online at <a href="http://www.math.unl.edu/~ncuwm/20thAnnual/resources/">http://www.math.unl.edu/~ncuwm/20thAnnual/resources/</a> Note to undergraduates: Table assignments for conference guests are featured in Sched, on a list at the registration desk, and online on the NCUWM website. Please put your nametag on your seat before getting in the buffet line, and please allow table hosts to jump to the front of the line. Be prepared to switch tables during the meal to maximize networking opportunities.	Regents Ballroom BCDEF (Embassy Suites)

#### Notes

Check-out time for the hotel on Sunday is 1 p.m., at the latest.

**If you are flying out of Lincoln:** Hotel shuttles to the airport depart on the hour, and every half hour as needed.

Please be sure to let the front desk staff know when you need to depart. The typical amount of time needed to arrive at the Lincoln airport is 1 hour and 15 minutes prior to flight departure.

**If you are flying out of Omaha:** Allow at least an hour of drive time to the airport (weather permitting) and an additional 1 hour and 15 minutes prior to flight departure.

#### Evaluation Survey (please complete after the conference):

<https://www.surveymonkey.com/r/BQQ3PFH>

The evaluation survey for the Nebraska Conference for Undergraduate Women in Mathematics is being conducted by the RMC Research Corporation, located in Denver, Colorado. The survey is intended to help the conference planning committee and evaluators understand what worked well, what participants gained from participating in the conference, and what might be enhanced to make any future conferences more useful and beneficial for participants. Questions gather information on your perceptions on whether goals were met, your satisfaction with different facets of the sessions, opportunities to network, conference logistics, what you were able to take away from the conference, and your recommendations. The survey does not collect identifying information. You will be asked to create a unique number that will only be used to track responses. Data from the survey will be seen by conference organizers and the conference evaluators, and may be used to plan future conferences. The information collected will be incorporated into conference reports, which will be publicly available. However, no individual identifying information will be published in any reports. An email message will be forthcoming from the external evaluation team with a link to the survey. However, if you wish to take the survey sooner, please feel free to enter the URL above into your web browser or scan the QR code. Thanks for your consideration and participation in the conference evaluation survey.



9:30am – 9:45am	B <b>Session 1 - Visualizing Dessin d'Enfants on the Torus</b> <i>Speaker: Danika Van Niel</i>	Regents Ballroom B (Embassy Suites)
9:30am – 9:45am	A <b>Session 1 - Automated jigsaw puzzle assembly and invariant signatures</b> <i>Speaker: Qimeng Yu</i>	Regents Ballroom C (Embassy Suites)
9:30am – 9:45am	A <b>Session 1 - Breaking the Enigma</b> <i>Speaker: Stephanie Garcia</i>	Regents Ballroom F (Embassy Suites)
9:50am – 10:50am	<b>Panel Discussion: Choosing a Graduate Program</b> <i>Speakers: Tara Fife, Cynthia Flores, Samantha Hill, Su Ji Hong, Casey Necheles, Kristen Savary, Charlotte Ure</i>	Regents Ballroom BC (Embassy Suites)
10:50am – 11:15am	<b>Conference Photo</b>	Outside (if bad weather: Atrium Embassy Suites)
11:15am – 11:30am	R <b>Session 2 - kth-Order Fibonacci-like Polynomials</b> <i>Speaker: Alexandra Embry</i>	Regents Ballroom B (Embassy Suites)
11:15am – 11:30am	A <b>Session 2 - What's in the Air? Using Mathematical Models to Predict Boston Air Quality</b> <i>Speaker: Kaela Nelson</i>	Regents Ballroom C (Embassy Suites)
11:15am – 11:30am	A <b>Session 2 - Dynamics of Red Coral Populations</b> <i>Speaker: Hye Kim</i>	Regents Ballroom F (Embassy Suites)
11:35am – 11:50am	N <b>Session 2 - An Infinite Tree of Primitive Pythagorean Quadruples</b> <i>Speakers: Marcela Gutierrez, Viola McCarty</i>	Regents Ballroom B (Embassy Suites)
11:35am – 11:50am	A <b>Session 2 - Modeling of Ca<sup>2+</sup> Dynamics during Fertilization in Caenorhabditis elegans worms</b> <i>Speaker: Xiaotong Gui</i>	Regents Ballroom C (Embassy Suites)
11:35am – 11:50am	A <b>Session 2 - Metrics of Gerrymandering</b> <i>Speaker: Rachel Koch</i>	Regents Ballroom F (Embassy Suites)
11:55am – 12:10pm	N <b>Session 2 - Convergence of N<sup>th</sup> Generalized Continued Fractions</b> <i>Speaker: Catherine Rea</i>	Regents Ballroom B (Embassy Suites)
11:55am – 12:10pm	A <b>Session 2 - Equation of State for Matter at Extreme Conditions</b> <i>Speaker: Olga Dorabiala</i>	Regents Ballroom C (Embassy Suites))
11:55am – 12:10pm	A <b>Session 2 - Using Bayesian Inference to Reconstruct a Tsunami</b> <i>Speaker: Martha Morrise</i>	Regents Ballroom F (Embassy Suites)
12:15pm – 12:30pm	N <b>Session 2 - Norm-Euclidean Ideal Classes in Galois Cubic Fields</b> <i>Speaker: Kelly Emmrich</i>	Regents Ballroom B (Embassy Suites)
12:15pm – 12:30pm	A <b>Session 2 - Study of Vortex Dynamics with Free Surface Flow</b> <i>Speaker: Hannah Barta</i>	Regents Ballroom C (Embassy Suites)
12:15pm – 12:30pm	A <b>Session 2 - Bifurcation Properties for Navigation Constellation Design</b> <i>Speaker: Katja Vassilev</i>	Regents Ballroom F (Embassy Suites)
12:40pm – 2:00pm	<b>Professionals' Development Luncheon</b>	Atrium (Embassy Suites)
12:40pm – 2:00pm	<b>Lunch for Undergraduates (on your own, see restaurant list)</b>	Downtown Lincoln
2:00pm – 3:00pm	<b>Poster Session A</b> <i>Speakers: Leah Bayer, Amanda Burkhart, Erica Bajo Calderon, Cinthia Calvo, Jasmine Camero, Dana Casabella, Ariana Cavazos, Aria Chaderjian, Alice Chudnovsky, Maria Contreras, Hanna Crowe, Niyousha Davachi, Jeannie Dees, Abigayle Dirdak, Dominique Forbes, Kelley France, Abigail Genereau, Seraphina Gibson, Nathalie Huerta, Sophia Hui, Lauren Hux, Skylyn Irby, Margrethe Jebsen, Tiffany Jenkins, Grace Kelting, Brielle Kwarta, Linxin Liu, Llasmin Lopez, Qingyi Lu, Genevieve Maalouf, Anna Marek, Maria Briseno Martinez, Meraiah Martinez, Mackenzie Maschka, Victoria Meza, Bridget Minellono, Sara Myers, Cara Nix, Faith Pearson, Haley Pena, Kayla Roberts, Carmin Robson, Laura Schlesinger, Jean Springsteen, Shelby Stowe, Tyler Sullivan, Hannah Tolson, Madison Tung, Valerie Yeutter</i>	Regents Ballroom A (Embassy Suites)
3:10pm – 4:05pm	<b>2nd Plenary Talk: Life in the Algebra Lane</b> <i>Speaker: Irena Swanson</i>	Regents Ballroom BC (Embassy Suites)
4:15pm – 4:25pm	<b>Snack Break</b>	Pre-Convention Area (Embassy Suites)

# Nebraska Conference for Undergraduate Women in Mathematics

<https://ncuwm2018.sched.com>

20th ANNUAL - JANUARY 26-28

## JANUARY 26 • FRIDAY

1:00pm – 3:15pm	<b>Registration, Snacks &amp; Campus Tours</b> <i>Snacks are provided in hotel atrium area.                  Campus tours meet in the hotel lobby and leave every 15 minutes between 2:30 p.m. and 3:30 p.m.</i>	Atrium and Lobby (Embassy Suites, 1040 P Street, Lincoln, NE 68508)
3:40pm – 4:00pm	<b>Conference Opening Session</b> <i>Speakers: Christine Kelley, Glenn Ledder, Donde Plowman, Tom Marley</i>	Auditorium, Second Floor (Nebraska Union, 1400 R St)
4:00pm – 5:00pm	<b>1st Plenary Talk: Mathematical Ideas in Public Key Cryptography</b> <i>Speaker: Jill Pipher</i>	Auditorium, Second Floor (Nebraska Union)
5:05pm – 6:05pm	<b>Panel Discussion: Careers Using Mathematics</b> <i>Moderator: Glenn Ledder                  Speakers: Mary Hegemann, Christine Klymko, Anisah Nu'Man, Elizabeth Russell, Molly Stubblefield, Maggy Tomova</i>	Auditorium, Second Floor (Nebraska Union)
6:45pm – 9:00pm	<b>Banquet and Panel Discussion</b> <i>Moderator: Judy Walker                  Speakers: Alissa Crans, Jill Pipher, Emily Price, Irena Swanson</i>	Regents Ballroom BCDEF (Embassy Suites)

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|-----------------------|-------------------------|------------------------|---------------------------------|-----------------------------|----------------------|
| <b>A</b> Applied Math | <b>B</b> Algebra/Coding | <b>C</b> Combinatorics | <b>D</b> Geometric Group Theory | <b>E</b> Geometry           | <b>F</b> Knot Theory |
| <b>G</b> Graph Theory | <b>H</b> Algebra        | <b>M</b> Math Modeling | <b>N</b> Number Theory          | <b>R</b> Numerical Analysis | <b>S</b> Statistics  |

## JANUARY 27 • SATURDAY

7:00am – 8:00am	<b>Poster Setup for Session A</b>	Regents Ballroom A (Embassy Suites)
7:00am – 10:30am	<b>Breakfast</b>	Atrium (Embassy Suites)
8:10am – 8:25am	<b>A Session 1 - Modeling Assortative Mating: Creating Configurations of Conflicting Counterparts</b> <i>Speaker: Lydia DeMorett</i>	Regents Ballroom C (Embassy Suites)
8:10am – 8:25am	<b>E Session 1 - Extending the Bacher-Grace Theorem to Quadrilaterals and Other Polygons</b> <i>Speaker: Callie Duque</i>	Regents Ballroom F (Embassy Suites)
8:30am – 8:45am	<b>G Session 1 - Competition and (1,2)-Step Competition Numbers in 4-Cycle Graph Variations</b> <i>Speaker: Carissa Babcock</i>	Regents Ballroom B (Embassy Suites)
8:30am – 8:45am	<b>A Session 1 - Modeling Cilia-Driven Pulmonary Fluid Flow</b> <i>Speaker: Mary Lib Saine</i>	Regents Ballroom C (Embassy Suites)
8:30am – 8:45am	<b>C Session 1 - Factorizations of k-Nonnegative Matrices</b> <i>Speaker: Neeraja Kulkarni</i>	Regents Ballroom F (Embassy Suites)
8:50am – 9:05am	<b>G Session 1 - Neighborhood-Prime Labelings of Tree Graphs</b> <i>Speaker: Malori Cloys</i>	Regents Ballroom B (Embassy Suites)
8:50am – 9:05am	<b>A Session 1 - Constraints on the Oceanic Carbon Sink Using Atmospheric Oxygen Data</b> <i>Speaker: Julie Sherman</i>	Regents Ballroom C (Embassy Suites)
8:50am – 9:05am	<b>C Session 1 - On <math>\lambda</math>-Unimodal Permutations</b> <i>Speaker: Catherine King</i>	Regents Ballroom F (Embassy Suites)
9:10am – 9:25am	<b>G Session 1 - Reliability of Two-Terminal Graphs with Terminal Distance 3 or 4</b> <i>Speaker: Kasandra Short</i>	Regents Ballroom B (Embassy Suites)
9:10am – 9:25am	<b>A Session 1 - Predicting U.S. Childhood Obesity through Mathematical Modeling</b> <i>Speaker: Britney Mazzetta</i>	Regents Ballroom C (Embassy Suites)
9:10am – 9:25am	<b>B Session 1 - Coding for Distributive Storage from Curves</b> <i>Speaker: Emma Fancher</i>	Regents Ballroom F (Embassy Suites)