

**2019 Spring Research Symposium  
Gustavus Adolphus College, May 3, 2019**

**Session A: Oral Presentations, Olin Hall 103**

1:30 pm	<p><b>Dopant Concentration Dependence of Crystal Structure Stability and Optical Properties of Luminescent <math>\text{Ln}_x\text{Y}_{x-1}\text{VO}_4</math> (Ln=Nd, Sm)</b></p> <p><b>Michaela Zachman</b> and Ian Hill Advisor: Ian Hill, Chemistry</p>
1:45 pm	<p><b>Laboratory Analysis of Rock Sample Suites from a Mars Rover Simulation, Green River Formation, Utah</b></p> <p><b>Madison Adams</b>, Julie Bartley, R. Aileen Yingst, Rebecca M. Williams, Linda C. Kah, Michael Lotto, and Michelle E. Minitti Advisor: Julie Bartley, Geology</p>
2:00 pm	<p><b>Low Frequency Sound Waves Effect on Pain Perception Generated by the Cold Pressor Task</b></p> <p><b>Hannah Nolte</b> Advisor: Mark Kruger, Psychological Science</p>
2:15 pm	<p><b>Qualitative and Quantitative Cyclic Voltammetry in Upper Division Chemistry Teaching Labs</b></p> <p><b>Rachel Lund</b> and Matthew Venzke Advisor: Brian O'Brien, Chemistry</p>
2:30 pm	<p><b>Lamina Structure as an Indicator of Stromatolite Biogenicity</b></p> <p><b>Thais Altenberg-Vaz</b> Advisor: Julie Bartley, Geology</p>
2:45 pm	<p><b>Effect of Rapid Cold-Hardening on Respiration Rates of Mitochondria Isolated from <i>Sarcophaga Bullata</i></b></p> <p><b>Alyssa Welle</b> Advisor: Yuta Kawarasaki, Biology</p>
3:15 pm	<p><b>Estimating Vigor of <i>Echinacea Angustifolia</i> Relative to its Non-Native Congener <i>E. pallida</i> and Their Hybrids in a Fragmented Prairie Habitat</b></p> <p><b>Riley Thoen</b>, Stuart Wagenius, Sanjive Qazi, and Pamela Kittelson Advisor: Pamela Kittelson, Biology</p>

**Session B: Oral Presentations, Olin Hall 220**

1:30 pm	<b>Subglacial Mineral Erosion Rates from the Little Ice Age to Present for College Glacier</b>  <b>Charlotte Cowdery</b> Advisor: Laura Triplett, Geology
1:45 pm	<b>Predicting Pitch Type in MLB</b>  <b>Avery Wood</b> Advisor: Laura Boehm Vock, Mathematics, Computer Science, and Statistics
2:00 pm	<b>Microstructural and Rheologic Analysis of the Wildhorse Detachment Fault Zone in the Pioneer Mountains, ID</b>  <b>Alex Senjem</b> Advisor: Rory McFadden, Geology
2:15 pm	<b>The Influence of Landslides on Ravine Valley Morphology in Nicollet and Sibley Counties</b>  <b>Emily Fischer</b> Advisor: Laura Triplett, Geology
2:30 pm	<b>Uncertainties in Glacier Geodetic Volumetric Analysis on Volcan Chimborazo, Ecuador</b>  <b>Hanna Albers</b> Advisor: Jeff LaFrenierre, Geography
2:45 pm	<b>Quantifying Glacier Volume Change using an Unmanned Aerial Systems (UAS)-Derived Imagery and TanDEM-X Data on Volcán Cayambe, Ecuador.</b>  <b>Chloe Shaw, Hanna Albers, and Jeff LaFrenierre</b> Advisor: Jeff LaFrenierre, Geography
3:00 pm	<b>Tomographic Reconstruction of 2D Ultrasound Projections</b>  <b>Ezekiel Haugen</b> Advisor: Thomas Huber, Physics
3:15 pm	<b>Instability and Complexity of Polycyclic Musk Galaxolide</b>  <b>Amy Crawford, Devin Makey, David Harmes, and Kristine H. Warmer, and Dwight Stoll</b> Advisor: Dwight Stoll, Chemistry