NSF LSAMP/CAMP, MURPPS and IIFH Scholars Summer Virtual Research Symposium

Schedule of Events

Friday, August 20, 2021
1:00 p.m. - 3:35 p.m.

https://ucdavis.zoom.us/j/91836631483?pwd=SGjjalcxVjkrNWg3YlcrOGRFMFVwUT09
The National Science Foundation (NSF) Louis Stokes Alliance for Minority Participation in the Sciences (LSAMP) program is called CAMP (California Alliance for Minority Participation) and it is part of a UC systemwide alliance. The NSF CAMP Program at UC Davis aims to recruit and retain students in STEM majors, facilitate their academic success, provide professional development, and encourage their transition to graduate study. Particular emphasis is placed on evidence-based recruitment and retention strategies, and relevant research and educational experiences in support of racial and ethnic groups historically underrepresented in STEM disciplines: African Americans, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians, and Native Pacific Islanders. Faculty-mentored research experiences play a large role in the program and NSF CAMP Scholars actively participate in research during the summer and throughout the academic year.

The Innovation Institute for Food & Health (IIFH) Undergraduate Research Fellowship is an award intended to support undergraduate students performing research with guidance by UC Davis faculty that relates to the mission of the IIFH to catalyze innovation across food, agriculture, and health. The IIFH Undergraduate Research Fellowship provides a summer research experience including professional development opportunities and training events related to entrepreneurship.

The Mentorship for Undergraduate Research Participants in the Physical and Mathematical Sciences (MURPPS) Program is a UC Davis undergraduate mentoring program supported by the Office of the Dean, College of Letters & Science. The MURPPS program is designed to increase the number of underserved students who pursue graduate studies in the physical and mathematical sciences by engaging diverse students in faculty-mentored research relevant to their majors. MURPPS at UC Davis aims to recruit and retain students, facilitate their academic success, provide professional development, and encourage their transition to graduate study.
### NSF LSAMP/CAMP, MURPPS, and IIFH Scholars Summer Virtual Research Symposium Schedule of Events

**Friday, August 20, 2021**

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<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>01:00-01:05 PM</td>
<td>Welcome, Announcements &amp; Introductions</td>
</tr>
<tr>
<td>01:05-03:25 PM</td>
<td>Virtual Presentations</td>
</tr>
<tr>
<td>03:30-03:35 PM</td>
<td>Acknowledgments and Close</td>
</tr>
</tbody>
</table>

## Virtual Presentations

### Group 1: Chemistry, Engineering, Mathematics, & Physical Sciences

<table>
<thead>
<tr>
<th>Time</th>
<th>Name</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:05 PM</td>
<td><strong>Alejandro Armas</strong>,</td>
<td>Biomedical Engineering</td>
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<tr>
<td></td>
<td>Building Microservices for ResilientDB Connectivity</td>
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<tr>
<td>1:20 PM</td>
<td><strong>Yal Bai</strong>,</td>
<td>Applied Mathematics</td>
</tr>
<tr>
<td></td>
<td>Ralstonia Data Analysis</td>
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<tr>
<td>1:35 PM</td>
<td><strong>Trevor Clarke</strong>,</td>
<td>Applied Physics</td>
</tr>
<tr>
<td></td>
<td>The Effect of Disorder on Perfect Quantum State Transfer in Coupled Cavity-Emitter Arrays</td>
<td></td>
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<tr>
<td>1:50 PM</td>
<td><strong>Mykyta Dementyev</strong>,</td>
<td>Physics</td>
</tr>
<tr>
<td></td>
<td>Temperature and Gate Dependence of Carrier Diffusion in Single Crystal Methylammonium Lead Bromide Perovskite Nanostructures</td>
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<tr>
<td>2:05 PM</td>
<td><strong>Joakin Ejie</strong>,</td>
<td>Biomedical Engineering</td>
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<tr>
<td></td>
<td>Cloning Fluorescent Reporters for Hydrogelated Bacteria to Assess Invasion of Cancer Cells</td>
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<tr>
<td>2:20 PM</td>
<td><strong>Emily Jimenez</strong>,</td>
<td>Pharmaceutical Chemistry</td>
</tr>
<tr>
<td></td>
<td>Summer Research 2021: Synthesis of Densely Substituted Tetralins</td>
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<tr>
<td>2:35 PM</td>
<td><strong>Minatallah Mahgoub</strong></td>
<td>Chemical Engineering</td>
</tr>
<tr>
<td></td>
<td>Temperature Dependent Enzyme Kinetics</td>
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<tr>
<td>2:50 PM</td>
<td><strong>Metzi Montero</strong>,</td>
<td>Applied Physics</td>
</tr>
<tr>
<td></td>
<td>The Electrochemical Synthesis of Cu-Intercalated Bi₃Se₃</td>
<td></td>
</tr>
<tr>
<td>3:05 PM</td>
<td><strong>Emely Rivera</strong>,</td>
<td>Biomedical Engineering</td>
</tr>
<tr>
<td></td>
<td>Tissue Engineering Applications for Spina Bifida</td>
<td></td>
</tr>
<tr>
<td>3:20 PM</td>
<td><strong>Jeffrey Toman</strong>,</td>
<td>Biochemistry &amp; Molecular Biology</td>
</tr>
<tr>
<td></td>
<td>Synthesis of Tetrasubstituted Allenes</td>
<td></td>
</tr>
<tr>
<td>3:35 PM</td>
<td><strong>ACKNOWLEDGMENTS AND CLOSING REMARKS</strong></td>
<td></td>
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</tbody>
</table>
### Group 2: Biological Sciences

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:05 PM</td>
<td>Daniel Cardenas</td>
<td>Detection and Identification of Novel Compounds using in silico and in vitro methods</td>
<td>Biochemistry and Molecular Biology</td>
</tr>
<tr>
<td>1:20 PM</td>
<td>Kimberly Evans</td>
<td>Into the Floodplain: Modeling Juvenile Chinook Salmon Growth</td>
<td>Environmental Science &amp; Management</td>
</tr>
<tr>
<td>1:35 PM</td>
<td>Jaime Morales Gallardo</td>
<td>Does parental experience change the ability to recover after a stressor?</td>
<td>Global Disease Biology</td>
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<td></td>
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<td>Examining the hormonal response and hippocampal gene expression</td>
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<tr>
<td>1:50 PM</td>
<td>Lennyn Morales</td>
<td>Determining Relative Stoichiometry of Domain-Forming CoQ proteins in CoQ Biosynthetic Pathway</td>
<td>Biomedical Engineering</td>
</tr>
<tr>
<td>2:05 PM</td>
<td>Valerie Nyasimi</td>
<td>Efficacy of plant Bacteria Pseudomonas sp. in controlling Chickpea fungus, Fusarium oxysporum</td>
<td>Global Disease Biology</td>
</tr>
<tr>
<td>2:20 PM</td>
<td>Mikaela Pham</td>
<td>Generation of a thermostable myrosinase to improve sulforaphane formation</td>
<td>Biotechnology &amp; Design</td>
</tr>
<tr>
<td>2:35 PM</td>
<td>Lindsay Rodgers</td>
<td>Nitrogen-fixing Bacteria in Landrace Maize Mucilage: A Metabolic Mystery</td>
<td>Global Disease Biology</td>
</tr>
<tr>
<td>2:50 PM</td>
<td>Juan Ado Sales</td>
<td>Cloning 3 Heterodera schactii Effector Genes</td>
<td>Biotechnology</td>
</tr>
<tr>
<td>3:05 PM</td>
<td>Dilasha Shenas</td>
<td>Detecting New Tools for Developing Grey Mold in Strawberries</td>
<td>Genetica &amp; Genomics</td>
</tr>
<tr>
<td>3:20 PM</td>
<td>Sydney Woods</td>
<td>Analyzing Platinum Resistance in Ovarian Cancer Patients</td>
<td>Computer Science</td>
</tr>
<tr>
<td>3:35 PM</td>
<td></td>
<td>ACKNOWLEDGMENTS AND CLOSING REMARKS</td>
<td></td>
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</tbody>
</table>
2021 Summer Research Scholars

List of Presenters

Group 1: Chemistry, Engineering, Mathematics, & Physical Sciences

Alejandro Armas

Major: Computer  
Year: fourth  
Research Program: CAMP  
Faculty Mentor: Mohammad Sadoghi, PhD: Computer Science  
Research Title: Building Microservices for Resilient DB Connectivity

Yal Bai

Major: Applied Mathematics  
Year: Third  
Research Program: MURPPS  
Faculty Mentor: Tiffany Lowe-Power, PhD: Plant Pathology  
Research Title: Ralstonia Data Analysis

Trevor Clarke

Major: Applied Physics  
Year: Fourth  
Research Program: MURPPS  
Faculty Mentor: Richard Scalettar, PhD: Physics  
Research Title: The Effect of Disorder on Perfect Quantum State Transfer in Coupled Cavity-Emitter Arrays

Mykyta Dementyev

Major: Physics  
Year: Third  
Research Program: NSF LSAMP/CAMP  
Faculty Mentor: Dong Yu, PhD: Physics  
Research Title: Temperature and Gate Dependence of Carrier Diffusion in Single Crystal Methylammonium Lead Bromide Perovskite Nanostructures
Emily Jimenez

Major: Pharmaceutical  
Year: Second  
Research Program: MURPPS  
Faculty Mentor: Jared Shaw, PhD: Chemistry  
Research Title: Synthesis of Densely Substituted Tetralins

Minatallah Mahgoub

Major: Chemical  
Year: Second  
Research Program: NSF LSAMP/CAMP  
Faculty Mentor: Michael Toney, PhD: Chemistry  
Research Title: Temperature Dependent Enzyme Kinetics

Metzil Montero

Major: Applied Physics  
Year: Fourth  
Research Program: MURPPS  
Faculty Mentor: Valentin Taufour, PhD: Physics & Astronomy  
Research Title: The Electrochemical Synthesis of Cu-Intercalated Bi$_2$Se$_3$

Emely Rivera

Major: Biomedical Engineering  
Year: Second  
Research Program: NSF LSAMP/CAMP  
Faculty Mentor: Chaoxing Zhang, PhD: Surgery/Biomedical Engineering  
Research Title: Tissue Engineering Application for Spina Bifida

Jeffrey Toman

Major: Biochemistry & Molecular Biology  
Year: Third  
Research Program: NSF LSAMP/CAMP  
Faculty Mentor: Jared Shaw, PhD: Chemistry  
Research Title: Synthesis of tetrasubstituted allenes
Group 2: Biological Sciences

Daniel Cardenas
Major: Biochemistry & Molecular  
Year: Second  
Research Program: NSF LSAMP/CAMP  
Faculty Mentor: Oliver Fiehn, PhD: Molecular & Cellular Biology  
Research Title: Detection and Identification of Novel Compounds using in silico and in vitro methods

Joakin Ejie
Major: Biomedical Engineering  
Year: Fourth  
Research Program: NSF LSAMP/CAMP  
Faculty Mentor: Cheemeng Tan, PhD: Biomedical Engineering  
Research Title: Cloning Fluorescent Reporters for Hydrogelated Bacteriato Assess Invasion Cancer Cells

Kimberly Evans
Major: Environmental Science & Management  
Year: Fourth  
Research Program: NSF LSAMP/CAMP  
Faculty Mentor: Rachel Johnson, PhD: Center for Watershed Services  
Research Title: Into the Floodplain: Modeling juvenile Chinook Salmon Growth

Jaime Morales Gallado
Major: Global Disease Biology  
Year: Fourth  
Research Program: NSF LSAMP/CAMP  
Faculty Mentor: Rebecca Calisi Rodriguez, PhD: Neurobiology, Physiology, and Behavior  
Research Title: Does Parental Experience change the ability to recover after a stressor? Examining the hormonal response and hippocampal gene expression.
Lennyn Morales

Major: Biomedical Engineering  
Year: Fourth  
Research Program: NSF LSAMP/CAMP  
Faculty Mentor: Jodi Nunnari, PhD: Molecular & Cellular Biology  
Research Title: Determining Relative Stoichiometry of Domain-Forming CoO proteins in CoO Biosynthetic Pathway

Valerie Nyasimi

Major: Global Disease Biology  
Year: Fourth  
Research Program: IIFH  
Faculty Mentor: Douglas Cook, PhD: Plant Pathology  
Research Title: Efficacy of plant bacteria Pseudomonas sp. In controlling Chickpea fungus, Fusarium oxysporum

Mikaela Pham

Major: Biotechnology and Design  
Year: Fourth  
Research Program: IIFH  
Faculty Mentor: Patrick Shih, PhD: Plant Biology Research  
Research Title: Generation of a thermostable myrosinase to improve sulforaphane formation

Lindsay Rodgers

Major: Global Disease Biology  
Year: Fourth  
Research Program: IIFH  
Faculty Mentor: Alan Bennett, PhD: Plant Sciences  
Research Title: Nitrogen-fixing Bacterial in Landscape Maize Mucilage: A Metabolic Mystery
Juan Amado Sales

Major: Biotechnology  
Year: Fourth  
Research Program: IIFH  
Faculty Mentor: Dr. Shahid Siddique: Entomology & Nematology  
Research Title: Cloning 3 *Heterodera schactii* Effector Genes

Dilasha Shenaz

Major: Generics & Genomics  
Year: Second  
Research Program: NSF LSAMP/CAMP  
Faculty Mentor: Barbara Blanco-Ulate, PhD: Plant Sciences  
Research Title: Detecting New Tools for Developing Grey Mold in Strawberries

Sydney Woods

Major: Computer Science  
Year: Fourth  
Research Program: NSF LSAMP/CAMP  
Faculty Mentor: Jeremy Chien, PhD: Biochemistry and Molecular Medicine  
Research Title: Analyzing Platinum Resistance in Ovarian Cancer Patients
The Undergraduate Research Center (URC) at UC Davis encourages and facilitates research opportunities for UC Davis undergraduate students in all majors and class levels. We offer funding, awards, and activities to support undergraduate research across the university. The URC promotes faculty-mentored research as a high-impact student experience to enhance readiness to succeed in future careers. Explore our site to discover opportunities for students and faculty.

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