

# Undergraduate Research Fair

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Thursday, October 8, 2020  
1:30–6:00 p.m.  
Virtual Event

## BREAKOUT SESSIONS

Links to the breakout sessions will be sent to registered attendees via email.

- 3:00 p.m.**      **“Using Research to Prepare for Medical School”**  
Michelle Grundy, Ph.D. (Director, Health Professions Advisory Office)
- 3:00 p.m.**      **Research in Humanities and Social Sciences**  
Joanna Huh, Ph.D. (English; Early Modern English Drama and Poetry)  
and Megan Skaggs, Ph.D. candidate (International Education Policy  
and Management; Center for Latin American Studies)
- 3:30 p.m.**      **Highlighting Underrepresented Research  
Stories – A Panel Discussion**  
Jordan Brown, Ph.D. candidate (Pharmacology)  
Samaiyah Farid, Ph.D. (Astrophysics)  
Sarah Naguib, Ph.D. candidate (Neuroscience)

# Partner Offices and Programs

Offices/Programs	Website	Email
Career Center*	<a href="https://vanderbilt.edu/career">vanderbilt.edu/career</a>	<a href="mailto:careercenter@vanderbilt.edu">careercenter@vanderbilt.edu</a>
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Robert Penn Warren Center for the Humanities	<a href="https://vanderbilt.edu/rpw_center">vanderbilt.edu/rpw_center</a>	<a href="mailto:rpw.center@vanderbilt.edu">rpw.center@vanderbilt.edu</a>
Research on Conflict and Collective Action (ROCCA) Lab	<a href="https://lab.vanderbilt.edu/rocca">lab.vanderbilt.edu/rocca</a>	<a href="mailto:vanderbiltroccalab@gmail.com">vanderbiltroccalab@gmail.com</a>
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Vanderbilt Institute of Nanoscale Science and Engineering (VINSE)	<a href="https://vanderbilt.edu/vinse">vanderbilt.edu/vinse</a>	<a href="mailto:vinse@vanderbilt.edu">vinse@vanderbilt.edu</a>
Vanderbilt Scientific Immersion and Mentorship (SIM)*	<a href="https://studentorg.vanderbilt.edu/sim">studentorg.vanderbilt.edu/sim</a>	<a href="mailto:sim@vanderbilt.edu">sim@vanderbilt.edu</a>
Vanderbilt Summer Science Academy (VSSA)	<a href="https://medschool.vanderbilt.edu/vssa">medschool.vanderbilt.edu/vssa</a>	<a href="mailto:vssa@vanderbilt.edu">vssa@vanderbilt.edu</a>
Vanderbilt Undergraduate Research Journal (VURJ)*	<a href="https://anchorlink.vanderbilt.edu/organization/vurj">anchorlink.vanderbilt.edu/organization/vurj</a>	<a href="mailto:vurj@vanderbilt.edu">vurj@vanderbilt.edu</a>
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Writing Studio*	<a href="https://vanderbilt.edu/writing">vanderbilt.edu/writing</a>	<a href="mailto:writing.studio@vanderbilt.edu">writing.studio@vanderbilt.edu</a>

\*Denotes an office or program that is hosting live Zoom drop-in times during the fair.

# Zoom Room 1

1	Chandu Kona '23 Neuroscience; Economics	<b>Cogan's Syndrome: A Pathological Examination and Evaluation of Potential Biochemical Markers</b> <i>Mentor: Professor Christina Marasco, Biomedical Engineering</i>	<b>Group: 1a</b> <b>2:00 p.m.</b> <i>Block: 2-2:30 p.m.</i>	12	Sanjana Padala '23 Undeclared	<b>Why COVID-19 Is Especially Difficult for Those With Schizophrenia: Reasons and Solutions</b> <i>Mentor: Dr. Ricardo Caceda, Psychiatry, University of Arkansas</i>	<b>Group: 4b</b> <b>4:50 p.m.</b> <i>Block: 4:30-5 p.m.</i>
2	Kush Hari '23 Biomedical Engineering; Electrical Engineering	<b>Development of a Software Pipeline to Analyze Single-Cell RNA Sequencing</b> <i>Mentor: Professor Ken Lau, Cell and Developmental Biology</i>	<b>Group: 1a</b> <b>2:10 p.m.</b> <i>Block: 2-2:30 p.m.</i>	13	Acar Ary '20 Computer Science	<b>Cyberphysical Security for Distributed Supply Chain</b> <i>Mentor: Professor Jules White, Computer Science and Electrical Engineering</i>	<b>Group: 7a</b> <b>5:00 p.m.</b> <i>Block: 5-5:30 p.m.</i>
3	Zhoujun Sun '21 Psychology; Computer Science	<b>Design and Development of a Clinician Response System to Outpatient Cancer Patient Deterioration</b> <i>Mentor: Professor Shilo Anders, Anesthesiology</i>	<b>Group: 1a</b> <b>2:20 p.m.</b> <i>Block: 2-2:30 p.m.</i>	14	Jiachen Xu '22 Computer Science; Mathematics	 <b>Cyberphysical Security for Distributed Supply Chain</b> <i>Mentor: Professor Jules White, Computer Science and Electrical Engineering</i>	<b>Group: 7a</b> <b>5:00 p.m.</b> <i>Block: 5-5:30 p.m.</i>
4	Mila Sicorsky '21 Law, History, and Society; Medicine, Health, and Society	<b>The Social Dimensions of Reproductive Health: Analyzing Disparities in Morocco through Health Indicators and Social Determinants</b> <i>Mentor: Professor Taieb Belghazi, Critical and Cultural Theory, Center for Cross Cultural Learning</i>	<b>Group: 1b</b> <b>2:30 p.m.</b> <i>Block: 2:30-3 p.m.</i>	15	Tara Isanaka '23 Undeclared	<b>The Effect of Antheridiogen on the Rate of Ceratopteris Richardii Development</b> <i>Mentor: Professor Charles Brian Sissom, Biological Sciences</i>	<b>Group: 7a</b> <b>5:10 p.m.</b> <i>Block: 5-5:30 p.m.</i>
5	Faraaz Kazimuddin '23 Undeclared	<b>Outcomes for Patients Receiving CPR During Novel Coronavirus Outbreak in the United States</b> <i>Mentor: Dr. Aniruddha Singh, Cardiology</i>	<b>Group: 1b</b> <b>2:40 p.m.</b> <i>Block: 2:30-3 p.m.</i>	16	Tulasi Iyengar '23 Undeclared	<b>The Effect of Antheridiogen on the Rate of Ceratopteris Richardii Development</b> <i>Mentor: Professor Charles Brian Sissom, Biological Sciences</i>	<b>Group: 7a</b> <b>5:10 p.m.</b> <i>Block: 5-5:30 p.m.</i>
6	Danyi Chen '21 Cognitive Studies; Second Language Studies	<b>"I Definitely Said This Before": Conversational Memory and Reality Monitoring</b> <i>Mentor: Professor Sarah Brown-Schmidt, Psychology and Human Development</i>	<b>Group: 1b</b> <b>2:50 p.m.</b> <i>Block: 2:30-3 p.m.</i>	17	Shwe Khin '23 Human and Organizational Development	<b>The Effect of Antheridiogen on the Rate of Ceratopteris Richardii Development</b> <i>Mentor: Professor Charles Brian Sissom, Biological Sciences</i>	<b>Group: 7a</b> <b>5:10 p.m.</b> <i>Block: 5-5:30 p.m.</i>
7	Yiruo Xu '21 Earth and Environmental Sciences; Economics	<b>Evaluating the Application of Ce-in-zircon as a Magma fO2 Estimator</b> <i>Mentor: Professor Lily Claiborne, Earth and Environmental Sciences</i>	<b>Group: 4a</b> <b>4:00 p.m.</b> <i>Block: 4-4:30 p.m.</i>	18	Salem Omer '23 Undeclared	<b>The Effect of Antheridiogen on the Rate of Ceratopteris Richardii Development</b> <i>Mentor: Professor Charles Brian Sissom, Biological Sciences</i>	<b>Group: 7a</b> <b>5:10 p.m.</b> <i>Block: 5-5:30 p.m.</i>
8	Amelia Taylor '21 Chemistry; Philosophy	<b>Understanding Peripheral Amino Acid Metabolism in Obesity and Alzheimer's Disease</b> <i>Mentor: Professor John McLean, Chemistry</i>	<b>Group: 4a</b> <b>4:10 p.m.</b> <i>Block: 4-4:30 p.m.</i>	19	Maya Kumar '22 Computer Science; Mathematics	<b>Examining the Effect of Latency on the Follower Stopper Controller</b> <i>Mentor: Professor Dan Work, Civil and Environmental Engineering</i>	<b>Group: 7a</b> <b>5:20 p.m.</b> <i>Block: 5-5:30 p.m.</i>
9	Lauren Grohowski '23 Mechanical Engineering; Communication of Science and Technology	<b>Discrete Feature Exploration from Wearable Insole Data</b> <i>Mentor: Professor Karl Zelik, Mechanical Engineering</i>	<b>Group: 4a</b> <b>4:20 p.m.</b> <i>Block: 4-4:30 p.m.</i>	20	Rahul Devathu '23 Medicine, Health, and Society; Computer Science	<b>The Use of Generative Adversarial Networks (GANs) in Cognitive Science Research</b> <i>Mentor: Professor Sean Polyn, Psychology</i>	<b>Group: 7b</b> <b>5:40 p.m.</b> <i>Block: 5:30-6 p.m.</i>
10	Adrian Florea '22 Mechanical Engineering; Communication of Science and Technology	<b>Design and Prototyping of a Disposable Transmission for Concentric Tube Continuum Robots</b> <i>Mentor: Professor Robert Webster III, Mechanical Engineering</i>	<b>Group: 4b</b> <b>4:30 p.m.</b> <i>Block: 4:30-5 p.m.</i>	21	Alexis Pramberger '21 Child Development; Medicine, Health, and Society	<b>Domestic Workers and the Employer-Employee Relationship in Delhi: Personal Connection and Dissonance</b> <i>Mentor: Professor Chris Kurian, International Studies</i>	<b>Group: 7b</b> <b>5:50 p.m.</b> <i>Block: 5:30-6 p.m.</i>
11	Maya Sandel '21 Earth and Environmental Sciences	<b>Identifying Pseudotachylite from the Ora Caldera in Northern Italy Through Textural and Geochemical Analysis</b> <i>Mentor: Professor Darren Gravley, Volcanology and Geothermal Systems, University of Canterbury, New Zealand</i>	<b>Group: 4b</b> <b>4:40 p.m.</b> <i>Block: 4:30-5 p.m.</i>				

 designates an Immersion Vanderbilt project \*All times are Central time

# Zoom Room 2

1	Yoanna Ivanova '21 Biomedical Engineering	<b>Evaluating the Metabolic Impact of Irradiated Fibroblasts in Recurrent Triple Negative Breast Cancer</b> <i>Mentor: Professor Marjan Rafat, Chemical and Biomolecular Engineering</i>	<b>Group: 2a</b> <b>2:00 p.m.</b> <i>Block: 2-2:30 p.m.</i>	11	Katherine Kopp '22 Neuroscience	<b>IM Signaling Bias Associated with the Glucagon-Like Peptide-1 Receptor</b> <i>Mentor: Professor Kevin Niswender, Endocrinology</i>	<b>Group: 8a</b> <b>5:10 p.m.</b> <i>Block: 5-5:30 p.m.</i>
2	Kaitlin Joshua '21 Medicine, Health, and Society; Economics	<b>"Restoring Cultures of Life": Examining the Narrative Strategies of Pro-Life Facebook Groups</b> <i>Mentor: Professor Sophie Bjork-James, Anthropology</i>	<b>Group: 2a</b> <b>2:10 p.m.</b> <i>Block: 2-2:30 p.m.</i>	13	Natalie Elliott '22 Earth and Environmental Sciences; Communication of Science and Technology	<b>IM Paleontologic Range Size Dynamics Inform Modern Ecology and Biodiversity</b> <i>Mentor: Professor Maria Jorge, Earth and Environmental Sciences</i>	<b>Group: 8b</b> <b>5:30 p.m.</b> <i>Block: 5:30-6 p.m.</i>
3	Yi Ji '21 Computer Science	<b>Network Conversion to Enable Foolbox Use</b> <i>Mentor: Professor Taylor Johnson, Computer Engineering</i>	<b>Group: 2a</b> <b>2:20 p.m.</b> <i>Block: 2-2:30 p.m.</i>	14	Nolan Siegel '23 Economics	<b>Serial Killers: Under a Societal Spotlight</b> <i>Mentor: Professor Laurie Woods, Sociology</i>	<b>Group: 8b</b> <b>5:40 p.m.</b> <i>Block: 5:30-6 p.m.</i>
4	Zaynah Ajmal '20 Psychology	<b>Young APP/PSEN1 Mice are Susceptible to Subclinical Seizure Activity</b> <i>Mentor: Professor Fiona Harrison, Endocrinology</i>	<b>Group: 2b</b> <b>2:30 p.m.</b> <i>Block: 2:30-3 p.m.</i>	15	Sydney Roth '21 Neuroscience; Medicine, Health, and Society	<b>Brain-Based Markers of Cognition in Nonverbal Individuals with Angelman Syndrome</b> <i>Mentor: Professor Alexandra Key, Hearing and Speech Sciences</i>	<b>Group: 8b</b> <b>5:50 p.m.</b> <i>Block: 5:30-6 p.m.</i>
5	Robert (Mason) Clark '21 Biological Sciences; Molecular & Cellular Biology	<b>Synthesis and Application of a Trifunctional Small-Molecule Probe to Study Time-Resolved Protein-Protein Interactions</b> <i>Mentor: Professor Lars Plate, Chemistry</i>	<b>Group: 2b</b> <b>2:40 p.m.</b> <i>Block: 2:30-3 p.m.</i>	 designates an Immersion Vanderbilt project *All times are Central time			
6	Jessica Mo '22 Medicine, Health, and Society	<b>An Agent-Based Model of Species Resilience in Response to Climate Change</b> <i>Mentor: Professor P. David Polly, Earth and Atmospheric Sciences, Indiana University</i>	<b>Group: 2b</b> <b>2:50 p.m.</b> <i>Block: 2:30-3 p.m.</i>				
7	Jacob Schenthal '21 Earth and Environmental Sciences; Environmental Sociology	<b>Investigating Xylene and Toluene in Disadvantaged Communities Downwind of LAX</b> <i>Mentor: Professor Donald Blake, Chemistry</i>	<b>Group: 5</b> <b>4:30 p.m.</b> <i>Block: 4:30-5 p.m.</i>				
8	Abigail Manning '21 Biological Sciences; Spanish	<b>Repolarizing Tumor-Associated Macrophages with Cytokine-Loaded Cryogels to Induce Anti-Tumor Immunity</b> <i>Mentor: Professor Thomas Clements, Biological Sciences</i>	<b>Group: 5</b> <b>4:40 p.m.</b> <i>Block: 4:30-5 p.m.</i>				
9	Janet Stefanov '22 Mathematics; Russian; Economics	<b>IM The Adoption of M-Pesa: A Percolation Approach to Network Goods</b> <i>Mentor: Professor Lori Rafter, Mathematics</i>	<b>Group: 5</b> <b>4:50 p.m.</b> <i>Block: 4:30-5 p.m.</i>				
10	Yumeng Zhang '21 Medicine, Health, and Society	<b>Singing Through Celebration and Separation: The Role of Traditional Folk Songs in the Health of Rural Women in Kangra District, Himachal Pradesh</b>	<b>Group: 8a</b> <b>5:00 p.m.</b> <i>Block: 5-5:30 p.m.</i>				

# Zoom Room 3

1	Benjamin Donohoe '22 Economics; Political Science	<b>Pen, to Paper, to the Polls: The Impact of Initiative Signature Gathering Campaigns on Electoral Outcomes</b> <i>Mentor: Professor John Sides, Political Science</i>	<b>Group: 3</b> <b>2:00 p.m.</b> <i>Block: 2-2:30 p.m.</i>	11	Catherine Martinez '22 Neuroscience; Psychology	<b>Possible Explanations of Variation in OCD and Schizophrenia Comorbidity Rates and Outcomes</b> <i>Mentor: Professor Sohee Park, Psychology</i>	<b>Group: 9a</b> <b>5:20 p.m.</b> <i>Block: 5-5:30 p.m.</i>
2	Yan Wang '20 Computer Science; Mathematics	<b>Evaluation of ALC Toolchain on Neural Networks and Architectures</b> <i>Mentor: Professor Gabor Karsai, Electrical Engineering</i>	<b>Group: 3</b> <b>2:10 p.m.</b> <i>Block: 2-2:30 p.m.</i>	12	Tiffany Lee '21 Molecular and Cellular Biology; English Literature	<b>Pro-Inflammatory Pathways Mediating Inflammation during Helicobacter pylori Infection</b> <i>Mentor: Professor Holly Algood, Medicine</i>	<b>Group: 9b</b> <b>5:30 p.m.</b> <i>Block: 5:30-6 p.m.</i>
3	Abdul-Latif Gbadamoshie '22 Mechanical Engineering	<b>Tools for Assured Autonomy</b> <i>Mentor: Professor Gabor Karsai, Electrical Engineering</i>	<b>Group: 3</b> <b>2:20 p.m.</b> <i>Block: 2-2:30 p.m.</i>	13	Nam Dau '22 Computer Science	<b>Making Visualized Graphs for Micromobility Parking Locations</b> <i>Mentor: Professor Dan Work, Civil and Environmental Engineering</i>	<b>Group: 9b</b> <b>5:40 p.m.</b> <i>Block: 5:30-6 p.m.</i>
4	Elle Summerfield '22 Computer Science; Economics	<b>Human Response to System Faults in UUVs</b> <i>Mentor: Professor Gabor Karsai, Electrical Engineering</i>	<b>Group: 6a</b> <b>4:00 p.m.</b> <i>Block: 4-4:30 p.m.</i>	 designates an Immersion Vanderbilt project *All times are Central time			
5	Zhengkai Xie '21 Education Studies; Mathematics; Computer Science	 <b>CTLI Milankovitch Cycles and Ice Ages Project</b> <i>Mentor: Professor Akos Ledeczki, Computer Engineering</i>	<b>Group: 6a</b> <b>4:10 p.m.</b> <i>Block: 4-4:30 p.m.</i>				
6	Nilai Vemula '22 Physics; Mathematics	<b>Using Convolutional Neural Networks to Segment Images of Packed Epithelial Cell Layers for Inferring Cellular Forces</b> <i>Mentor: Professor Shane Hutson, Physics and Astronomy</i>	<b>Group: 6b</b> <b>4:30 p.m.</b> <i>Block: 4:30-5 p.m.</i>				
7	Lucy Britto '22 Biomedical Engineering	 <b>Irradiation Alters Adipocyte Expression of Glucose Transporter Type 1 and 4</b> <i>Mentor: Professor Marjan Rafat, Chemical and Biomolecular Engineering</i>	<b>Group: 6b</b> <b>4:40 p.m.</b> <i>Block: 4:30-5 p.m.</i>				
8	Teo Lee '21 Computer Science; Mathematics	<b>Emergency Incident Prediction: Minimizing Response Time to Traffic Accidents</b> <i>Mentor: Professor Abhishek Dubey, Computer Science</i>	<b>Group: 6b</b> <b>4:50 p.m.</b> <i>Block: 4:30-5 p.m.</i>				
9	Allie Morris '22 Neuroscience; Medicine, Health, and Society	<b>Examining the Role of KAT2A in Cocaine Self-Administration</b> <i>Mentor: Professor Erin Calipari, Pharmacology</i>	<b>Group: 9a</b> <b>5:00 p.m.</b> <i>Block: 5-5:30 p.m.</i>				
10	Corey Hsiao '21 Chemistry	<b>Novel Manufacturing 3-D Printed Mold</b> <i>Mentor: Professor David Wright, Chemistry</i>	<b>Group: 9a</b> <b>5:10 p.m.</b> <i>Block: 5-5:30 p.m.</i>				

The Vanderbilt Undergraduate Research Fair is sponsored by the Office of Immersion Resources, the Vanderbilt Undergraduate Summer Research Program, the Office of the Provost, and the Littlejohn and Goldberg Families.

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