



VANDERBILT UNIVERSITY  
Office of Experiential Learning  
and Immersion Vanderbilt

# Undergraduate Research Fair

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Tuesday, April 11, 2023  
3:00–6:00 p.m.

## SCHEDULE OF EVENTS

**3:00–4:00 p.m. Research Fair, Group A**

**4:00–4:45 p.m. Breakout Sessions**

**Breakout Room 1: Getting into Graduate School; Advice & Research**

Attendees will learn more about graduate programs from current Ph.D. candidates, Jennie Shuman, Jessie Wang, and Maya Krause, representing the Department of Pathology, Microbiology and Immunology, Department of Special Education, and the Department of Anthropology. They will discuss their personal research as well as provide best practices when applying to graduate programs, and how they settled on Vanderbilt.

**Breakout Room 2: Exploring Artificial Intelligence: A Discussion with Professor Charreau Bell**

Professor Charreau Bell, Director of the Data Science Minor, Assistant Professor of the Practice in Computer Science, and Senior Data Scientist at the Data Science Institute joins the Office of Experiential Learning and Immersion Vanderbilt to share their information and research on AI.

**5:00–6:00 p.m. Research Fair, Group B**

**5:15 p.m. Remarks and Award Ceremony led by Chancellor Daniel Diermeier**

# Presentations – Group A

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Alexander Ahrens '23  
Computer Science;  
Mathematics; Physics

**IM Real-space, real-time approach to quantum-electrodynamical time-dependent density functional theory**

*Mentor: Professor Kalman Varga, Physics and Astronomy*

**Group: A**  
3:00–4:00 p.m.

Brian Arnold '23  
Medicine, Health and Society

**IM Nucleus Orientation in Human Cells**

*Mentor: Professor Rafael Arrojo e Drigo, Molecular Physiology and Biophysics*

**Group: A**  
3:00–4:00 p.m.

Lauren Babb '23  
Biomedical Engineering

**Investigating Lipophilic siRNAs for Treatment of Triple Negative Breast Cancer**

*Mentor: Professor Craig Duvall, Biomedical Engineering*

**Group: A**  
3:00–4:00 p.m.

Makenzie Baker '23  
Medicine, Health and Society

**IM Literature Review on the Reliability of Eyewitness Memory as a Function of Confidence**

*Mentor: Professor Timothy McNamara, Psychology*

**Group: A**  
3:00–4:00 p.m.

Jack Boylan '24  
Biochemistry and Chemical Biology;  
Chemical Biology

**Developing a toolbox of anti-Cas9 nanobodies**

*Mentor: Professor Benjamin Spiller, Pharmacology*

**Group: A**  
3:00–4:00 p.m.

Luis Chiner Carrillo '26  
Undeclared

**Geometry of Locus on Real Inner Product Spaces**

*Mentor: Jone Lopez de Gamiz Zearra, PhD, Mathematics*

**Group: A**  
3:00–4:00 p.m.

Justin Cartailier '24  
Biochemistry and Chemical Biology;  
Chemical Biology

**Elucidating the Role of Interleukin-1 $\beta$  in Disrupting Cytotoxic T Cell Function in Acute Myeloid Leukemia**

*Mentor: Professor Brent Ferrell, Immunology*

**Group: A**  
3:00–4:00 p.m.

Fiona Cherry '23  
Chemistry; Medicine, Health  
and Society

**Investigating Effects of Nanoparticle-Mediated Rictor Knockdown on Tumor Immune Microenvironment Using a Syngeneic Mouse Model**

*Mentor: Professor Craig Duvall, Biomedical Engineering*

**Group: A**  
3:00–4:00 p.m.

Riya Chinni '24  
Medicine, Health and Society;  
Psychology

**IM The antimicrobial activity of selenium against the perinatal pathogen *Streptococcus agalactiae***

*Mentor: Professor Jennifer Gaddy, Infectious Diseases*

**Group: A**  
3:00–4:00 p.m.

Andy Crowe '23  
Economics and History

**Soaking Wet and Bone-dry Ballots: Voting Rights and the Anti-Saloon League's Push for Prohibition**

*Mentor: Professor Lauren Clay, History*

**Group: A**  
3:00–4:00 p.m.


Kyle Davis '24  
Chemistry

**IM Untargeted Liquid Chromatography-Ion Mobility-Mass Spectrometry Approach for the Periodic Table of Food Initiative**

*Mentor: Professor John McLean, Chemistry*

**Group: A**  
3:00–4:00 p.m.

Julian Delgado '24 Computer Science	<b>Exploring the relationship between Genetic Risk, Family History, and Alcohol Use Disorder</b> <i>Mentor: Professor Maria Niarchou, Genetic Medicine</i>	<b>Group: A</b> 3:00–4:00 p.m.
Shanay Desai '25 Neuroscience	<b>Evaluating the Mechanisms of Yoda1 Sensitization of TRAIL-Mediated Apoptosis in Glioblastoma Cells</b> <i>Mentor: Professor Michael King, Biomedical Engineering</i>	<b>Group: A</b> 3:00–4:00 p.m.
Katelyn Dohler '23 Medicine, Health and Society; Spanish	<b>The Ethics of Medical Volontourism: the Conceptualization and Management of 'Not Doing Harm' Within the Business</b> <i>Mentor: Claire Barthélémy, Geneva Centre for Education and Research in Humanitarian Action</i>	<b>Group: A</b> 3:00–4:00 p.m.
Gabriella Faircloth '25 Chemical Engineering	<b>Effects of Stimulating Human Bronchial Epithelial Cells With House Dust Mite on RNA Secretion</b> <i>Mentor: Dr. Heather Pua, Pathology, Microbiology, and Immunology</i>	<b>Group: A</b> 3:00–4:00 p.m.
Hannah Farley '23 Computer Science	<b>ChatGPT: Applications for Software Engineering in Computer Science Higher Education and iOS Application Development</b> <i>Mentor: Professor Vikash Singh, Computer Science</i>	<b>Group: A</b> 3:00–4:00 p.m.
Ralph Francois '25 Psychology	<b>Examining Childhood Diet of Ancient Andean Site of Auquimarca through Stable Carbon Isotope Analysis</b> <i>Mentor: Professor Tiffany Tung, Anthropology</i>	<b>Group: A</b> 3:00–4:00 p.m.
George Gfroerer '23 Neuroscience	<b>Amygdala Volume and Face Activation Compared to Social Network Size, Face Recognition Ability, and the Fusiform Face Area</b> <i>Mentor: Professor Rankin McGugin, Psychology</i>	<b>Group: A</b> 3:00–4:00 p.m.
Tristen Gittens '23 Molecular and Cellular Biology; Medicine, Health and Society	<b>Characterization of Hotspots for De Novo Telomere Addition in <i>Saccharomyces cerevisiae</i></b> <i>Mentor: Professor Katherine Friedman, Biological Sciences</i>	<b>Group: A</b> 3:00–4:00 p.m.
Akash Gururaja '23 Neuroscience	<b>Patient Perceptions of Virtual Live Music in the ICU</b> <i>Mentor: Dr. Joseph Schlesinger, Anesthesiology</i>	<b>Group: A</b> 3:00–4:00 p.m.
Andrew Hallmark '23 Medicine, Health and Society	 <b>Development of Type II Diabetes (T2DM) through HIV and increased ectopic lipid deposition</b> <i>Mentor: Professor Gilbert Gonzales, Medicine, Health, and Society</i>	<b>Group: A</b> 3:00–4:00 p.m.

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# Presentations – Group A

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Alexander Hasse '23  
Economics

**Exercise performance is not improved in mice with skeletal muscle deletion of natriuretic peptide clearance receptor**

*Mentor: Professor Sheila Collins, Cardiovascular Medicine*

**Group: A**  
3:00–4:00 p.m.

Callie Hilgenhurst '23  
Earth and Environmental Sciences

**Characterizing Microplastic Pollution in Mammoth Cave National Park**

*Mentor: Professor Jessica Oster, Earth and Environmental Sciences*

**Group: A**  
3:00–4:00 p.m.

Vamsi Immanneni '24  
Computer Science

**Rolling Distance Prediction for Commercial Aircraft**

*Mentor: Professor Sankaran Mahadevan, Civil and Environmental Engineering*

**Group: A**  
3:00–4:00 p.m.

Rincon Jagarlamudi '25  
Biochemistry and Chemical Biology

**A FMRP Dependent pathway for the Glial Phagocytosis of Brain Neurons**

*Mentor: Professor Kendal Broadie, Neurobiology*

**Group: A**  
3:00–4:00 p.m.

Weixi Kang '23  
Chemistry; Law, History and Society

**Ferroptosis Inhibitors Suppress Prostaglandin Synthesis in Lipopolysaccharide-Stimulated Macrophages**

*Mentor: Professor Lawrence Marnett, Biochemistry*

**Group: A**  
3:00–4:00 p.m.

Lindsey Keener '23  
Psychology

**Antisocial Behavior and Empathic Anosognosia in Behavioral-variant Frontotemporal Dementia**

*Mentor: Dr. Ryan Darby, Neurology*

**Group: A**  
3:00–4:00 p.m.

Lily Kim '23  
Biochemistry and Chemical Biology

**Investigating the Interaction Between HCoV-229E Nsp3 and the COG Complex**

*Mentor: Professor Lars Plate, Chemistry*

**Group: A**  
3:00–4:00 p.m.

Amanda Kouaho '23  
Medicine, Health and Society;  
Molecular and Cellular Biology

**Analyzing the Relationship Between Maternal Health Literacy and The Maternal Healthcare System**

*Mentor: Professor Lucie Kalousova, Medicine, Health, and Society*

**Group: A**  
3:00–4:00 p.m.

Ke Lai '23  
Psychology; Economics

**Are You Making the Right Choice? How Deciding Impacts Food Evaluation and Judgment**

*Mentor: Professor Jennifer Trueblood, Psychology*

**Group: A**  
3:00–4:00 p.m.

Celia Lamb '23  
Medicine, Health and Society

**The Role of Glycoprotein Nonmetastatic Melanoma Protein B in Vascular Inflammation during Infectious Challenge**

*Mentor: Dr. Ryan Stark, Pediatrics*

**Group: A**  
3:00–4:00 p.m.

Emily Lattman '23  
Medicine, Health and Society;  
Spanish

**Bilingual Adaptation of Sam Books for Early Readers**

*Mentor: Professor Melanie Schuele, Hearing and Speech Sciences*

**Group: A**  
3:00–4:00 p.m.

John Lee '23 Chemistry	<b>Analyzing amyloid aggregation using two-dimensional infrared spectroscopy</b> <i>Mentor: Professor Lauren Buchanan, Chemistry</i>	<b>Group: A</b> 3:00–4:00 p.m.
Anda Liang '24 Computer Science; Mathematics	 <b>A Controlled Experiment in Age and Gender Bias When Reading Technical Articles in Software Engineering</b> <i>Mentor: Professor Yu Huang, Computer Science</i>	<b>Group: A</b> 3:00–4:00 p.m.
Zhangsen Ling '24 Molecular Biology	<b>Partial Replication of Interest in Cancer Screening Tests That Lack Benefits</b> <i>Mentor: Professor Bianca Manago, Sociology</i>	<b>Group: A</b> 3:00–4:00 p.m.
Yilin Liu '23 Computer Science; Mathematics	 <b>Characterization of Eosinophilic Esophagitis Using the CircleSnake Model</b> <i>Mentor: Professor Yuankai Huo, Computer Science</i>	<b>Group: A</b> 3:00–4:00 p.m.
Joey Lu '23 Biochemistry and Chemical Biology	<b>Investigating the role of the P4-type ATPase 10A in endothelial endocytosis</b> <i>Mentor: Professor Todd Graham, Biological Sciences</i>	<b>Group: A</b> 3:00–4:00 p.m.
Lauren Malley '23 Medicine, Health and Society; Psychology	 <b>Micro Mittens: Examining the Mechanism of Sticky Mittens Training in Infants</b> <i>Mentor: Professor Amy Needham, Psychology and Human Development</i>	<b>Group: A</b> 3:00–4:00 p.m.
Matthew Marino '24 Neuroscience	 <b>Identification of TRIP8b Inhibitory Compounds in Regulating HCN Function</b> <i>Mentor: Dr. Dane Chetkovich, Neurology</i>	<b>Group: A</b> 3:00–4:00 p.m.
Andrew Miller '23 Molecular and Cellular Biology	<b>Assessing the role of ppid and ninj1 in overnutrition-induced <math>\beta</math> cell death in <i>Danio rerio</i></b> <i>Mentors: Professor Wenbiao Chen, Molecular Physiology and Biophysics, and Professor Allison Leich-Hilbun, Biological Sciences</i>	<b>Group: A</b> 3:00–4:00 p.m.
Emily Miller '24 Chemistry	 <b>CO<sub>2</sub>/CO Conversion to Useful Carbon Fuels Using a Photosystem I Active Layer</b> <i>Mentor: Professor David Cliffl, Chemistry</i>	<b>Group: A</b> 3:00–4:00 p.m.
Kate Mlouk '24 Neuroscience	 <b>Role of Serpina3n and APOE in Blood-Brain Barrier Dysfunction of Alzheimer's Disease</b> <i>Mentor: Professor Ethan Lippmann, Chemical and Biomolecular Engineering</i>	<b>Group: A</b> 3:00–4:00 p.m.
Nikol Nikolova '23 Medicine, Health and Society	 <b>Race and Satisfaction with Cancer Genetic Counseling</b> <i>Mentor: Professor Sophie Bjork-James, Anthropology</i>	<b>Group: A</b> 3:00–4:00 p.m.

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# Presentations – Group A

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Intiser Parash '24 Computer Science	<b>Improving Community and Neighborhood Safety through Open Data Collection</b> <i>Mentor: Professor Daniel Balasubramanian, Computer Science</i>	<b>Group: A</b> 3:00–4:00 p.m.
Henry Pliske '23 Ecology, Evolution and Organismal Biology	<b>Impact of Human Recreation on Mammal Activity Patterns</b> <i>Mentor: Professor Malu Jorge, Earth and Environmental Sciences</i>	<b>Group: A</b> 3:00–4:00 p.m.
Pax Poggi '25 Philosophy; Psychology	<b>Calculating Visual Consciousness from Mouse Neurophysiology Data</b> <i>Mentor: Professor Alexander Maier, Psychology</i>	<b>Group: A</b> 3:00–4:00 p.m.
Alex Prusky '23 Neuroscience	<b>A High-Content Screening Platform for the Quantification of Lysosome Morphology</b> <i>Mentor: Dr. Matthew Schrag, Neurology</i>	<b>Group: A</b> 3:00–4:00 p.m.
Brina Ratangee '24 Medicine, Health and Society; Neuroscience	<b>Area deprivation interacts with age and education on neurodegeneration and cognition</b> <i>Mentor: Professor Angela Jefferson, Neurology</i>	<b>Group: A</b> 3:00–4:00 p.m.
Maia Regan '23 Medicine, Health and Society	<b>“Thrown Out of a Moving Train”- Caregiver Experiences of the Transition from Pediatric Intensive to Acute Care</b> <i>Mentor: Professor Jessika Boles, Psychology</i>	<b>Group: A</b> 3:00–4:00 p.m.
Schyler Rowland '24 Biomedical Engineering	<b>Stimulation Via Cone-and-Plate Flow Device Activates Dendritic Cells</b> <i>Mentor: Professor Michael King, Biomedical Engineering</i>	<b>Group: A</b> 3:00–4:00 p.m.
Julia Russolillo '23 Medicine, Health and Society	<b>LRRC8A Channel Activity Dependence of NF-<math>\kappa</math>B Activation by TNF<math>\alpha</math> Signaling</b> <i>Mentor: Dr. Fred Lamb, Pediatrics</i>	<b>Group: A</b> 3:00–4:00 p.m.
Amanda Ruzumna '23 Economics; Political Science	<b>The Impact of Twitter on Public Opinion: A Case Study of Trump’s Twitter Usage on Immigration Attitudes and Presidential Approval</b> <i>Mentor: Professor Allison Anoll, Political Science</i>	<b>Group: A</b> 3:00–4:00 p.m.
Saksham Saksena '25 Molecular and Cellular Biology; Medicine, Health and Society	<b>Temperature and age shape the body size of mosquitoes and impact how they respond to infection</b> <i>Mentor: Professor Julian Hillyer, Biological Sciences</i>	<b>Group: A</b> 3:00–4:00 p.m.

Katrina Schwensen '24 Chemical and Biomolecular Engineering	<b>Characterization of Brain-Vasculature Targeting EG18-siRNA Conjugates</b> <i>Mentor: Professor Ethan Lippmann, Chemical and Biomolecular Engineering</i>	<b>Group: A</b> 3:00–4:00 p.m.
Allison Sewell '23 Political Science	<b>Transferrin Receptor Inhibition Reduces T Cell Metabolic Dysfunction in Systemic Lupus Erythematosus</b> <i>Mentor: Professor Jeffrey Rathmell, Pathology, Microbiology, and Immunology</i>	<b>Group: A</b> 3:00–4:00 p.m.
Eric Sha '24 Biochemistry and Chemical Biology	<b>The Role of Rac1 in Epithelial Collecting Duct Repair</b> <i>Mentor: Dr. Roy Zent, Cell and Developmental Biology</i>	<b>Group: A</b> 3:00–4:00 p.m.
Rabia Shaban '23 Medicine, Health, and Society	<b>Preparation of a Human Factor XII Variant Lacking the Cys340-Cys467 Disulfide Bond</b> <i>Mentor: Dr. David Gailani, Pathology, Microbiology, and Immunology</i>	<b>Group: A</b> 3:00–4:00 p.m.
Amelia Shaddinger '23 Child Development; Neuroscience	 <b>Antenatal Maternal Depressive Symptoms, Perceived Stress, and Infant Hippocampal Volume</b> <i>Mentor: Professor Kathryn Humphreys, Psychology and Human Development</i>	<b>Group: A</b> 3:00–4:00 p.m.
Alexander (Alex) Stoneman '23 Chemical Engineering; Chemistry	<b>Developing T-Cell Receptor Mechanosensory Tools and Simulations to Guide Biophysical Assays</b> <i>Mentor: Professor Matthew Lang, Chemical and Biomolecular Engineering</i>	<b>Group: A</b> 3:00–4:00 p.m.
Sydney Takemoto '23 Cognitive Studies; Child Development	 <b>The Valence of Parental Descriptions of the Child: Relations to Child Socioemotional and Behavioral Functioning and Caregiving Quality</b> <i>Mentor: Professor Kathryn Humphreys, Psychology and Human Development</i>	<b>Group: A</b> 3:00–4:00 p.m.
Vamsi Veeramachaneni '24 Neuroscience; Medicine, Health and Society	 <b>Epileptic Network in One Mouse Model of Dravet Syndrome</b> <i>Mentor: Professor Chengwen Zhou, Neurology</i>	<b>Group: A</b> 3:00–4:00 p.m.
Lexi von der Lieth '24 Medicine, Health and Society	 <b>Drawing Induces Forgetting</b> <i>Mentor: Professor Ashleigh Maxcey, Psychology</i>	<b>Group: A</b> 3:00–4:00 p.m.
Stella Wang '23 Psychology	<b>The Relationship between Core Values, Religiosity and Spirituality, and Health</b> <i>Mentor: Professor David Schlundt, Psychology and Human Development</i>	<b>Group: A</b> 3:00–4:00 p.m.
Yixin Wang '23 Psychology; Mathematics	<b>The Associations among Social Media Use, Young Adults' Wellbeing, and Mental Health During the COVID-19 Pandemic: The Moderating Roles of Motivation</b> <i>Mentor: Professor Craig Smith, Psychology and Human Development</i>	<b>Group: A</b> 3:00–4:00 p.m.

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# Presentations – Group A

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Jack Wohlgemuth '23  
Medicine, Health and Society

## Premonitory Urge in Tic Disorders

*Mentor: Dr. David Isaacs, Neurology*

**Group: A**  
3:00–4:00 p.m.

Mary Elizabeth Wright '25  
Public Policy Studies

## **Analysis of Segregation Patterns within the New York Public School System with Spatial Statistics**

*Mentor: Professor Steve Wernke, Anthropology*

**Group: A**  
3:00–4:00 p.m.

Angela Yan '24  
Asian American and Asian Diaspora  
Studies; Public Policy Studies

## The Impact of Race, Religion, and Ethnicity on Young Asian Americans' Perspectives on Abortion

*Mentor: Professor Sophie Bjork-James, Anthropology*

**Group: A**  
3:00–4:00 p.m.

James Yang '23  
Cognitive Studies

## Interoception and Emotional Embodiment in Musicians

*Mentor: Professor Sohee Park, Psychology*

**Group: A**  
3:00–4:00 p.m.

Katherine Zhong '23  
Medicine, Health and Society;  
Molecular and Cellular Biology

## **Negative Regulation of Immunity**

*Mentor: Professor Ann Tate, Biological Sciences*

**Group: A**  
3:00–4:00 p.m.

Maggie Zhou '24  
Molecular and Cellular Biology;  
Neuroscience

## Inhibition of RAS/PI3K/RAF signaling with rigosertib and/or trametinib slows melanoma growth in vitro: the role of CD40 induction

*Mentor: Professor Ann Richmond, Pharmacology*

**Group: A**  
3:00–4:00 p.m.

Tiffany Zhou '24  
Biochemistry and Chemical Biology;  
Medicine, Health and Society

## Exploring Copper Acquisition and Detoxification in *Acinetobacter baumannii*

*Mentor: Professor Eric Skaar, Pathology, Microbiology, and Immunology*






**Group: A**  
3:00–4:00 p.m.



# Presentations – Group B

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Cate Allen '24 Sociology	 <b>Partial Replication of Understanding Public Perceptions of Absolute and Relative Social Mobility</b> <i>Mentor: Professor Bianca Manago, Sociology</i>	<b>Group: B</b> 5:00–6:00 p.m.
Caroline Ambriano '23 Psychology	 <b>Examining Non-Suicidal Self-Injury Disclosure in Adolescents: A Mixed Methods Investigation</b> <i>Mentor: Dr. Alexandra Bettis, Psychiatry and Behavioral Sciences</i>	<b>Group: B</b> 5:00–6:00 p.m.
Varsha Ayyalapu '23 Economics	 <b>Drug Laws and Education Attainment amongst Men</b> <i>Mentor: Professor Adela Soliz, Public Policy and Higher Education</i>	<b>Group: B</b> 5:00–6:00 p.m.
Lilian Baker '25 Medicine, Health and Society; Anthropology	<b>Using Stable Oxygen Isotope Analysis to Reconstruct Middle Horizon (600-1000 CE) Migration Patterns in the Central Peruvian Highlands</b> <i>Mentor: Professor Tiffany Tung, Anthropology</i>	<b>Group: B</b> 5:00–6:00 p.m.
Lohitha Basa '24 Neuroscience	<b>Role of Paneth cell TRPV6 in alcohol-induced gut barrier dysfunction and liver injury</b> <i>Mentor: Professor Radhakrishna Rao, Biochemistry, University of Tennessee Health Science Center</i>	<b>Group: B</b> 5:00–6:00 p.m.
Jay Bhatia '25 Molecular and Cellular Biology	 <b>Transcriptional analysis of mTORC1 targets</b> <i>Mentor: Professor Ray Blind, Pharmacology</i>	<b>Group: B</b> 5:00–6:00 p.m.
Maya Biran '23 Medicine, Health and Society; Child Studies	 <b>Affect of Donor BMI on Cardiac Transplant Outcomes</b> <i>Mentor: Dr. John Trahanas, Cardiac Surgery</i>	<b>Group: B</b> 5:00–6:00 p.m.
Emma Boldwyn '23 Cognitive Studies; Child Development	<b>The impact of a positive emotionality intervention on reward responsiveness</b> <i>Mentor: Professor Autumn Kujawa, Psychology and Human Development</i>	<b>Group: B</b> 5:00–6:00 p.m.
Christopher Bozorgmehr '23 Human and Organizational Development; Neuroscience	<b>A Novel Human Body Organ Systems Approach to Interpret the Health Impacts of Drinking Water Contamination</b> <i>Mentor: Professor Yolanda McDonald, Human and Organizational Development</i>	<b>Group: B</b> 5:00–6:00 p.m.
Zeer Cen '23 Molecular and Cellular Biology	 <b>The Impact of Lambdoid Phage <math>\phi</math>80 Lysogen on the Fitness of E. coli <math>\Delta</math>FhuA Mutants</b> <i>Mentor: Professor Megan Behringer, Biological Sciences</i>	<b>Group: B</b> 5:00–6:00 p.m.
Ikenna Chukwu '23 Neuroscience; Medicine, Health and Society	 <b>Distribution of Inhibitory Neurons in Cortex</b> <i>Mentor: Professor Jon Kaas, Psychology</i>	<b>Group: B</b> 5:00–6:00 p.m.

<p>Jiulin Dai '23 Child Development; Ecology, Evolution, and Organismal Biology</p>	<p><b>Unique and Shared Mechanisms of Reading Skill and Anxiety Symptoms in Children</b> <i>Mentor: Professor James Booth, Psychology and Human Development</i></p>	<p><b>Group: B</b> 5:00–6:00 p.m.</p>
<p>Toluwa David '23 Biological Sciences</p>	<p><b>Genetic and Linguistic Admixture in Caribbean Creole Populations Show Complex Correlations</b> <i>Mentor: Professor Nicole Creanza, Biological Sciences</i></p>	<p><b>Group: B</b> 5:00–6:00 p.m.</p>
<p>Nandita Dey '23 Molecular and Cellular Biology; Medicine, Health and Society</p>	<p><b>Investigation of the Role of the Calcium Sensing Receptor in Pancreatic Islet Beta Cells</b> <i>Mentor: Professor Alvin Powers, Molecular Physiology and Biophysics</i></p>	<p><b>Group: B</b> 5:00–6:00 p.m.</p>
<p>Elaine Gboloo '25 Biomedical Engineering; Medicine, Health and Society</p>	<p><b>Investigation of Significant Skin Biomarkers in Psoriasis</b> <i>Mentor: Professor Stacy Sherrod, Chemistry</i></p>	<p><b>Group: B</b> 5:00–6:00 p.m.</p>
<p>Rehan Ghanta '23 Neuroscience</p>	<p> <b>Elucidating the Role of Specific Rhodopsin-Binding Elements in <math>\beta</math>-Arrestin-1</b> <i>Mentor: Professor Vsevolod Gurevich, Pharmacology and Ophthalmology and Visual Sciences</i></p>	<p><b>Group: B</b> 5:00–6:00 p.m.</p>
<p>Isabel Gothelf '23 Child Studies; Medicine, Health and Society</p>	<p> <b>Beyond the Medical Facts: Understanding the Ethical, Social, and Emotional Context of Complex Ethical Decision-Making in the NICU</b> <i>Mentor: Dr. Uchenna Anani, Clinical Pediatrics</i></p>	<p><b>Group: B</b> 5:00–6:00 p.m.</p>
<p>Sara Gregg '24 Child Development; Medicine, Health and Society</p>	<p> <b>Children's Learning Lab: Ordinality Study</b> <i>Mentor: Professor Bethany Rittle-Johnson, Psychology and Human Development</i></p>	<p><b>Group: B</b> 5:00–6:00 p.m.</p>
<p>Aashi Gurijala '25 Neuroscience; English</p>	<p> <b>Metabolic Effect Interactions Between Fragile X Syndrome and Glycogen Storage Disease in Two <i>Drosophila</i> Disease Models</b> <i>Mentor: Professor Kendal Broadie, Neurobiology</i></p>	<p><b>Group: B</b> 5:00–6:00 p.m.</p>
<p>Bridget Hartman '23 Medicine, Health and Society</p>	<p> <b>The Role of Metabolism in Adipose Development</b> <i>Mentor: Professor Elma Zaganjor, Molecular Physiology and Biophysics</i></p>	<p><b>Group: B</b> 5:00–6:00 p.m.</p>
<p>Marina He '24 Molecular and Cellular Biology; Chemistry</p>	<p><b>Screening of scFvs for the Generation of Function-Blocking Antibodies Against Thrombospondin-1 for Chronic Kidney Disease Treatment</b> <i>Mentor: Dr. Takamune Takahashi, Nephrology and Hypertension</i></p>	<p><b>Group: B</b> 5:00–6:00 p.m.</p>

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# Presentations – Group B

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Allison Henry '24  
Child Development; Chemistry

## Probing Aggregation Kinetics of SARS-CoV-2 Spike Protein Fragments

*Mentor: Professor Lauren Buchanan, Chemistry*

**Group: B**  
5:00–6:00 p.m.

Margaret-Anne Huntley '23  
Neuroscience

## The Development of Object Exploration in Autism Spectrum Disorder: A Comparative Case Study

*Mentor: Professor Amy Needham, Psychology and Human Development*

**Group: B**  
5:00–6:00 p.m.

Anwar Hussein Agha '25  
Economics; Medicine, Health and Society

## Inhibiting adaptive immune memory improves worsened glucose tolerance evoked by weight cycling in mice

*Mentor: Professor Alyssa Hasty, Molecular Physiology and Biophysics*

**Group: B**  
5:00–6:00 p.m.

Tara Isanaka '23  
Biochemistry and Chemical Biology

## **Oxidation of Alkaloids in the Dietary Supplement *Corydalis yanhusuo* as a Model of Bioactivity**

*Mentor: Professor Claus Schneider, Pharmacology*

**Group: B**  
5:00–6:00 p.m.

Bryan Jang '23  
Chemistry; Medicine, Health and Society

## Probing the binding of Protease-activated receptor 4 (PAR4) tethered ligand through PAR4 agonist peptide mutations

*Mentor: Professor Heidi Hamm, Pharmacology*

**Group: B**  
5:00–6:00 p.m.

Chanyoung (David) Jeong '23  
Cognitive Studies

## Antecedents of Blame: Causal Attributions and Appraisals

*Mentor: Professor Craig Smith, Psychology and Human Development*

**Group: B**  
5:00–6:00 p.m.

Kleio Jiang '23  
Psychology; Cognitive Studies

## Investigating Associations among Adverse Childhood Experiences, Parent Coping, and Adolescent Coping

*Mentor: Professor Bruce Compas, Psychology and Human Development*

**Group: B**  
5:00–6:00 p.m.

Mike Jiang '24  
Chemistry; Medicine, Health and Society

## Generation and Rescue of Destabilized Domain-Coronavirus Nonstructural Fusion Proteins to Study Time-Resolved Protein-Protein Interactions

*Mentor: Professor Lars Plate, Chemistry*

**Group: B**  
5:00–6:00 p.m.

Min Kalasikam '24  
Biochemistry and Chemical Biology;  
Medicine, Health and Society

## Inhibiting Nucleotide Excision Repair: Crystallizing XPA for Small Molecule Inhibitor Discovery

*Mentor: Professor Walter Chazin, Chemistry*

**Group: B**  
5:00–6:00 p.m.

Rebecca Keith '23  
Oboe; Psychology

## Positive Affect in Anxiety and Depression

*Mentor: Professor Antonia Kaczurkin, Psychology*

**Group: B**  
5:00–6:00 p.m.

Taaseen Khan '23  
Medicine, Health and Society;  
Neuroscience

**IM Telehealth Intervention to Improve Migraine Patient Care, Movement Disorder Patient Care, and Resident Training**

*Mentor: Dr. David Charles, Neurology*

**Group: B**  
5:00–6:00 p.m.

Srish Kumar '23  
Psychology; Political Science

**Prediction and Hypothesis Testing in Children's Novel Word Learning**

*Mentor: Professor Megan Saylor, Psychology and Human Development*

**Group: B**  
5:00–6:00 p.m.

Cassidy Latchford '23  
Child Development;  
Medicine, Health and Society

**Dialogic Questioning & its Influence on Parent-Child Interactions**

*Mentor: Professor Georgene Troseth, Psychology and Human Development*

**Group: B**  
5:00–6:00 p.m.

Anna-Grace Lilly '23  
Medicine, Health and Society

**Our Hands Our Tied: Practicing Medicine Under Restrictive Conditions**

*Mentor: Professor Sophie Bjork-James, Anthropology*

**Group: B**  
5:00–6:00 p.m.

Jiayue Liu '24  
Biological Sciences;  
Medicine, Health and Society

**IM Pancreatitis induces changes in gut microbiota and short chain fatty acid uptake**

*Mentor: Professor Kathleen DeGiorno, Cell and Developmental Biology*

**Group: B**  
5:00–6:00 p.m.

Samantha Mallahan '23  
Biomedical Engineering

**TSC2 effects on neural rosette lumen size in three-dimensional brain organoids**

*Mentor: Dr. Kevin Ess, Pediatrics*

**Group: B**  
5:00–6:00 p.m.

Kimberly Markowitz '23  
Neuroscience; Communication of  
Science and Technology

**IM Tic severity in relation to Adverse Childhood Experiences (ACEs) and psychosocial disorders in the Adult Tourette Population**

*Mentor: Dr. David Isaacs, Neurology*

**Group: B**  
5:00–6:00 p.m.

Robert McCarthy '23  
Molecular and Cellular Biology;  
Medicine, Health and Society

**IM Global regulator alleles alter metabolism and increase survival in experimentally evolved Escherichia coli populations**

*Mentor: Professor Megan Behringer, Biological Sciences*

**Group: B**  
5:00–6:00 p.m.

Maggie McGowan '23  
Child Development

**IM Exploring Connections between Maternal Speech and Infants' Use of Fine Motor Skills**

*Mentor: Professor Amy Needham, Psychology and Human Development*

**Group: B**  
5:00–6:00 p.m.

Catherine McQueen '23  
Psychology

**Utilizing a Digital Application to Promote Parent-Child Emotion Talk**

*Mentor: Professor Georgene Troseth, Psychology*

**Group: B**  
5:00–6:00 p.m.

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# Presentations – Group B

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Eshani Mehta '25 Neuroscience; Medicine, Health and Society	<b>Developing a Model of SF3B1 Mutation in Breast Cancer Cell Lines</b> <i>Mentor: Dr. Ben Park, Hematology and Oncology</i>	<b>Group: B</b> 5:00–6:00 p.m.
Asya Miles '23 Child Studies; Medicine, Health and Society	<b>Facilitators and Barriers to Successful Transition for Black Autistic Youth</b> <i>Mentor: Professor Elizabeth Biggs, Special Education</i>	<b>Group: B</b> 5:00–6:00 p.m.
Amy Milewski '23 Cognitive Studies; Medicine, Health and Society	 <b>Structural Brain Differences in Individuals with Bipolar Disorder: A Developmental Perspective</b> <i>Mentor: Professor Antonia Kaczurkin, Psychology</i>	<b>Group: B</b> 5:00–6:00 p.m.
Hijaan Mitha '23 Child Development; Medicine, Health and Society	 <b>Impact on Fine Motor Skills Upon Interaction with Stimulation Toys</b> <i>Mentor: Professor Amy Needham, Psychology and Human Development</i>	<b>Group: B</b> 5:00–6:00 p.m.
Kelsey Miu '25 Computer Science	<b>Co-Designing User Personas and a Simulation for Evaluating Adolescent Online Safety Interventions</b> <i>Mentor: Professor Pamela Wisniewski, Computer Science</i>	<b>Group: B</b> 5:00–6:00 p.m.
Rebecca Mueller '23 Human and Organizational Development; Psychology	<b>Association Between Psychopathology and Neurophysiological Responses to Emotional Images</b> <i>Mentor: Professor Autumn Kujawa, Psychology and Human Development</i>	<b>Group: B</b> 5:00–6:00 p.m.
Jacob Myers '25 Biochemistry and Chemical Biology; Communication of Science and Technology	<b>The Role of Nucleotide Biosynthesis in Adipose Development</b> <i>Mentor: Professor Elma Zaganjor, Molecular Physiology and Biophysics</i>	<b>Group: B</b> 5:00–6:00 p.m.
Isabelle Newman '23 Medicine, Health and Society	<b>Our Hands Our Tied: Practicing Medicine Under Restrictive Conditions</b> <i>Mentor: Professor Sophie Bjork-James, Anthropology</i>	<b>Group: B</b> 5:00–6:00 p.m.
Ardelan Oray '24 Medicine, Health and Society	<b>Delusional Ideation and Memory in the General Population</b> <i>Mentor: Professor Julia Sheffield, Psychiatry and Behavioral Sciences</i>	<b>Group: B</b> 5:00–6:00 p.m.
Samuel Oyerinde '23 Child Development; Medicine, Health and Society	<b>Transition Experiences of Black Youth with Autism - Youth Wellbeing and Family Quality of Life</b> <i>Mentor: Professor Elizabeth Biggs, Special Education</i>	<b>Group: B</b> 5:00–6:00 p.m.
Chloe Park '23 Medicine, Health and Society	 <b>Fueling TCA Cycle and Mitochondrial Function in B Lymphoblasts</b> <i>Mentor: Dr. Mark Boothby, Pathology, Microbiology, and Immunology</i>	<b>Group: B</b> 5:00–6:00 p.m.

Adi Peres '23  
Psychology

**IM Calcium-binding Protein Immunohistochemistry Reveals Laminar Distribution of Inhibitory Neurons in Primary Sensory Areas of Prosimian Galagos Throughout Development**

*Mentor: Professor Jon Kaas, Psychology*

**Group: B**  
5:00–6:00 p.m.

Sophia Piper '25  
Computer Science

**Co-Designing User Personas and a Simulation for Evaluating Adolescent Online Safety Interventions**

*Mentor: Professor Pamela Wisniewski, Computer Science*

**Group: B**  
5:00–6:00 p.m.

Alyssa Questell '23  
Biomedical Engineering;  
Environmental Sociology

**A Bone Marrow Mimetic Culture Platform for Evaluating Stiffness Effects on Breast Cancer Metastasis**

*Mentor: Professor Marjan Rafat, Chemical and Biomolecular Engineering*

**Group: B**  
5:00–6:00 p.m.

Lauren Radomski '23  
Psychology

**Recall-Induced Forgetting of Pictures**

*Mentor: Professor Ashleigh Maxcey, Psychology*

**Group: B**  
5:00–6:00 p.m.

Niraj Rama '23  
Neuroscience

**IM Monocyte-Derived Macrophage Polarization in Response to Small Cell Lung Cancer Subtype Microenvironment**

*Mentor: Professor Jonathan Irish, Cell and Developmental Biology*

**Group: B**  
5:00–6:00 p.m.

Christina Randolph '23  
Medicine, Health and Society;  
Psychology

**IM Longitudinal Changes in Bone Mineral Density from a Novel Murine Model with Conditional Knockdown of Lipolysis in Bone Marrow Adipocytes**

*Mentor: Professor Elizabeth Rendina-Ruedy, Clinical Pharmacology*

**Group: B**  
5:00–6:00 p.m.

Rani Saleh '23  
Medicine, Health and Society

**IM Sex Differences in Emotional Responsivity and Coping with Social Stress in Adolescents with Autism**

*Mentor: Professor Blythe Corbett, Psychiatry and Psychology*

**Group: B**  
5:00–6:00 p.m.

Joseph Sexton '23  
Cognitive Studies; Mathematics;  
Medicine, Health and Society

**IM Integrating Minority Stress and the Interpersonal Theory of Suicide: A Statewide, Population-Based Study of Sexual and Gender Minority Youth**

*Mentor: Professor Kirsty Clark, Medicine, Health, and Society*

**Group: B**  
5:00–6:00 p.m.

Estelle Shaya '23  
Latin American Studies;  
Earth and Environmental Sciences

**Predictors of Mammalian Biodiversity in the Nashville Urban Landscape**

*Mentor: Professor Malu Jorge, Earth and Environmental Sciences*

**Group: B**  
5:00–6:00 p.m.










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# Presentations – Group B

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Yumeng Shen '24 Child Development; Medicine, Health and Society	 <b>Relationships between Perceived Stress, Parent-child Relationship Quality, Parenting Styles, and College Experience: The Perspectives of Chinese International College Students and their Parents</b> <i>Mentor: Professor Jessika Boles, Psychology</i>	<b>Group: B</b> 5:00–6:00 p.m.
Madelyn Shultz '23 Child Development	 <b>Parent-Child Conversation Quality During Digital Application Use</b> <i>Mentor: Professor Georgene Troseth, Psychology</i>	<b>Group: B</b> 5:00–6:00 p.m.
Isra Shuster '24 Biochemistry and Chemical Biology; Chemical Biology	 <b>Machine Learning Guided Discovery of Bioactive Natural Products from <i>Amycolatopsis azurea</i></b> <i>Mentor: Professor Allison Walker, Chemistry</i>	<b>Group: B</b> 5:00–6:00 p.m.
Athira Sivadas '23 Biochemistry and Chemical Biology; Medicine, Health and Society	<b>Examining PFKL Filament Formation with Site-Specific Crosslinking</b> <i>Mentor: Professor Lars Plate, Chemistry</i>	<b>Group: B</b> 5:00–6:00 p.m.
Richard Song '25 Computer Science	 <b>Heart Rate Variability Biofeedback Modulates Physiological Influences on the BOLD Signal in Older Adults</b> <i>Mentor: Professor Catie Chang, Computer Science</i>	<b>Group: B</b> 5:00–6:00 p.m.
Kaila Tartaro '23 Molecular and Cellular Biology	 <b>Analysis of Sex-Based Differences in Vocal Expressiveness and Anxiety Between Individuals with Autism Spectrum Disorder</b> <i>Mentor: Professor Blythe Corbett, Psychiatry and Psychology</i>	<b>Group: B</b> 5:00–6:00 p.m.
Mason TeVrucht '23 Biological Sciences; Medicine, Health, and Society	<b>Estrogen Induced Proliferation of T47D Breast Cancer Cells</b> <i>Mentor: Dr. Anna Patrick, Pediatrics</i>	<b>Group: B</b> 5:00–6:00 p.m.
Lexi Tuch '23 Cognitive Studies; Political Science	 <b>Voters' Perceptions of Candidates' Gendered Features in Varying Election Contexts</b> <i>Mentor: Professor Cindy Kam, Political Science</i>	<b>Group: B</b> 5:00–6:00 p.m.
Joseph Udina '25 Political Science	<b>Political Consequences of Apolitical Conflict</b> <i>Mentor: Professor Bianca Manago, Sociology</i>	<b>Group: B</b> 5:00–6:00 p.m.
Zachary Wampler '23 Human and Organizational Development	 <b>Heat Resilience in Dynamic Urban Settings: Mapping Heat Vulnerability in Nashville, Tennessee, from 2010 to 2019</b> <i>Mentor: Professor Ashley Carse, Human and Organizational Development</i>	<b>Group: B</b> 5:00–6:00 p.m.



Emmeline Wang '24 Neuroscience	 <b>A Regulatory Mechanism Operating Between LOX Protein Family Members to Guarantee Blood Brain Barrier Homeostasis?</b> <i>Mentor: Dr. Matthew Schrag, Neurology</i>	<b>Group: B</b> 5:00–6:00 p.m.
Yuhan Wang '23 Molecular and Cellular Biology; Psychology	 <b>Ascorbate insufficiency alters EEG phenotype and glutamate transmission in a model of Alzheimer's Disease</b> <i>Mentor: Professor Fiona Harrison, Diabetes, Endocrinology, and Metabolism</i>	<b>Group: B</b> 5:00–6:00 p.m.
Hannah Ward '23 Political Science; Economics	 <b>All I Wanted was a Shower Chair: Accommodation and Administrative Burden in Higher Education</b> <i>Mentor: Professor David Lewis, Political Science</i>	<b>Group: B</b> 5:00–6:00 p.m.
Nyah Webb '23 Medicine, Health and Society	 <b>Musculoskeletal degeneration in the YAC128 mouse model of Huntington's disease</b> <i>Mentor: Professor Sun Peck, Clinical Pharmacology</i>	<b>Group: B</b> 5:00–6:00 p.m.
Mae Winglass '23 Cognitive Studies	 <b>The Effect of a Brief Positive Emotion Intervention on College Students' Stress, Anxiety, and Depression</b> <i>Mentor: Professor Autumn Kujawa, Psychology and Human Development</i>	<b>Group: B</b> 5:00–6:00 p.m.
Elisabeth Wood '23 Chemistry; History	 <b>Analytical Detection and Chemical Supplementation of Psilocybe Cubensis</b> <i>Mentor: Professor Dusty Miller, Chemistry</i>	<b>Group: B</b> 5:00–6:00 p.m.
Jessica Wu '23 Neuroscience; Medicine, Health and Society	 <b>Development of Kinetic cAMP Assay for mGlu8 Drug Discovery</b> <i>Mentor: Professor Colleen Niswender, Pharmacology</i>	<b>Group: B</b> 5:00–6:00 p.m.
Maggie Xu '23 Psychology	 <b>The Causal Role of Alpha Oscillations in Selection</b> <i>Mentor: Professor Geoffrey Woodman, Psychology</i>	<b>Group: B</b> 5:00–6:00 p.m.
Teresa Xu '23 English; Medicine, Health and Society; Sociology	 <b>A Labor of Love? The Gendered Socialization of Passion in Occupational Aspirations</b> <i>Mentor: Professor Daniel Cornfield, Sociology; Political Science; American Studies</i>	<b>Group: B</b> 5:00–6:00 p.m.
Robert Yarnall '23 Neuroscience; Medicine, Health and Society	 <b>Examining associations between prenatal stress exposure, newborn BNST connectivity, and anxiety symptoms in early childhood</b> <i>Mentor: Professor Katherine Humphreys, Psychology and Human Development</i>	<b>Group: B</b> 5:00–6:00 p.m.

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# Presentations – Group B

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Phoebe Young '24  
Cognitive Studies, Neuroscience

## **Neural Adaptations in the Insular Cortex following Abstinence from Chronic Alcohol Exposure**

*Mentor: Professor Danny Winder, Molecular Physiology and Biophysics*

**Group: B**  
5:00–6:00 p.m.

Alina Yu '23  
Medicine, Health and Society

## **Characterization of Pcy/Pcy mice, a mouse model of polycystic kidney disease**

*Mentor: Dr. Takamune Takahashi, Nephrology and Hypertension*

**Group: B**  
5:00–6:00 p.m.

Arthur Yu '23  
Medicine, Health and Society;  
Neuroscience

## **Selective inhibition of M5 muscarinic acetylcholine receptors attenuates dopamine release in the mesolimbic dopaminergic circuitry**

*Mentor: Professor Carrie Jones, Pharmacology*

**Group: B**  
5:00–6:00 p.m.

Eileen Yu '23  
Neuroscience; Medicine,  
Health and Society

## **Neural Reactivity to Infant Emotion Cues Across Pregnancy and the Postpartum Period: Associations with Depressive Symptoms**

*Mentor: Professor Autumn Kujawa, Psychology and Human Development*

**Group: B**  
5:00–6:00 p.m.

Gina Yu '25  
Neuroscience; Medicine,  
Health and Society

## **Development of neural circuits integrating drinking and feeding in female mice**

*Mentor: Professor Richard Simerly, Molecular Physiology and Biophysics*

**Group: B**  
5:00–6:00 p.m.

Gabija Zilinskaite '23  
Violin Performance; Psychology

## **Music and Self-Reported Emotion Regulation in Children**

*Mentor: Professor Reyna Gordon, Otolaryngology*

**Group: B**  
5:00–6:00 p.m.

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