VANDERBILT UNIVERSITY

# Undergraduate Research Fair

## Thursday, Sept. 30, 2021
## 3–6:30 p.m.

## SCHEDULE OF EVENTS

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

| | |
|---|---|
| **3 p.m.** | **Opening Remarks**<br>"Diverse Paths, Diverse Opportunities: Creating a Future with a Foundation of Research"<br>Samar Ali (Research Professor of Political Science and Law, Co-Chair, Vanderbilt Project on Unity and American Democracy) |
| **3:20–4 p.m.** | **Virtual Research Fair** |
| **4–4:30 p.m.** | ***Break*** |
| **4:30–5:30 p.m.** | **Research Fair, Group A** |
| **4:30–5 p.m.** | **Where to Go + Who to Know: STEM Knowledge + Resources on Vandy's Campus** |
| **5–5:30 p.m.** | **Getting Social with Science: Learning from the Humanities** |
| **5:30-6:30 p.m.** | **Research Fair, Group B** |

# Partner Offices and Programs

| Offices/Programs | Website | Email |
|---|---|---|
| Biochemistry and Chemical Biology* | as.vanderbilt.edu/bcb/ | DUS-BCB@vanderbilt.edu |
| Career Center | vanderbilt.edu/career | careercenter@vanderbilt.edu |
| Center for Digital Humanities | vanderbilt.edu/digitalhumanities | vanderbilt.edu/digitalhumanities/contact/ |
| Collaborative for STEM Education and Outreach (CSEO) | vanderbilt.edu/cseo | cseo@vanderbilt.edu |
| CURB Center** | vanderbilt.edu/curbcenter | curbcenter@vanderbilt.edu |
| Data Science Institute | vanderbilt.edu/datascience | datascience@vanderbilt.edu |
| Data Science Minor* | vanderbilt.edu/undergrad-datascience/ | undergraduate.datascience@vanderbilt.edu |
| Department of Chemistry* | vanderbilt.edu/chemistry/ | Chemistry@Vanderbilt.edu |
| GEO* | vanderbilt.edu/geo | geo@vanderbilt.edu |
| Health Professions Advisory Office (HPAO) | vanderbilt.edu/hpao | hpao@vanderbilt.edu |
| Jean and Alexander Heard Libraries* | library.vanderbilt.edu | library.vanderbilt.edu/about/contact |
| Neuroscience | as.vanderbilt.edu/neuroscience | elizabeth.catania@vanderbilt.edu ; rebecca.snyder@vanderbilt.edu |
| PRISM Lab | my.vanderbilt.edu/prism | luis.a.leyva@vanderbilt.edu |
| Robert Penn Warren Center | vanderbilt.edu/rpw_center | rpw.center@vanderbilt.edu |
| ROCCA lab | lab.vanderbilt.edu/rocca | vanderbiltroccalab@gmail.com |
| Scientific Immersion & Mentorship (SIM)* | studentorg.vanderbilt.edu/sim/ | sim@vanderbilt.edu |
| SYBBURE* | sybbure.org/program | sybbure@vanderbilt.edu |
| The Wond’ry | vanderbilt.edu/thewondry | thewondry@vanderbilt.edu |
| Vanderbilt Undergraduate Research Journal (VURJ)* | vurj.vanderbilt.edu | vurj@vanderbilt.edu |
| Vanderbilt Vanguard* | http://vanderbiltvanguard.com/ | vanderbiltvanguard@gmail.com |
| VINSE | vanderbilt.edu/vinse | vinse@vanderbilt.edu |
| VSSA | medschool.vanderbilt.edu/vssa/ | vssa@vanderbilt.edu |
| Writing Studio* | vanderbilt.edu/writing | writing.studio@vanderbilt.edu |

*Denotes an office or program that is hosting an information table during the fair.
**Denotes an office or program that is hosting a Zoom presentation during the fair.

# Virtual Fair Groups

**1** Saad Akhtar '22
Computer Science

**Love in a Big World**
*Mentor: Professor Douglas Schmidt, Computer Science*

Virtual
*Block: 3–4 p.m.*

**2** Hannah Anderson '22
Physics

**Angular Power Spectrum and Elliptic Flow from Event Maps in Heavy Ion Collisions**
*Mentor: Professor Vicki Greene, Physics*

Virtual
*Block: 3–4 p.m.*

**3** Matthew Anguiano '23
Neuroscience

**Investigating Relation Between Behavioral Responses to Social Evaluative Threat in Adolescents with and Without ASD**
*Mentor: Professor Blythe Corbett, Psychiatry*

Virtual
*Block: 3–4 p.m.*

**4** Songgu Cai '22
Economics and History

IV **The Nature of the Murasu Archive and its Implication Regarding the Economy of Nippur in the Achaemenid Empire**
*Mentor: Professor Annalisa Azzoni, Hebrew Bible*

Virtual
*Block: 3–4 p.m.*

**5** Katie Cella '22
Computer Science; Physics

**Expected Properties of Supermassive Black Hole Binary Systems Producing Periodically Varying Electromagnetic Signatures**
*Mentor: Professor Stephen Taylor, Physics and Astronomy*

Virtual
*Block: 3–4 p.m.*

**6** Hannah Chen '23
Biological Sciences

IV **Impact of TRIO Mutations on the Spatiotemporal Dynamics of Cortical Activity**
*Mentor: Professor Jessica Cardin, Neurology and Biophysics and Biochemistry, Yale University*

Virtual
*Block: 3–4 p.m.*

**7** Mathew Chvasta '22
Biochemistry; Russian

**Nucleotide Biosynthesis and BCAA Catabolism Enzymes shRNA Knockdowns**
*Mentor: Professor Elma Zaganjor, Molecular Physiology and Biophysics*

Virtual
*Block: 3–4 p.m.*

**8** David Cornea '23
Neuroscience

IV **Mutations in Visual Arrestin's 139-Loop**
*Mentor: Professor Vsevolod Gurevich, Pharmacology; Ophthalmology and Visual Sciences*

Virtual
*Block: 3–4 p.m.*

**9** Isabel Epstein '22
Medicine, Health and Society

**Longitudinal Outcomes of Children with Chronic Abdominal Pain**
*Mentor: Professor Amanda Stone, Anesthesiology*

Virtual
*Block: 3–4 p.m.*

**10** Carson Flamm '21
Neuroscience; History

**Characterization and Quantification of Seizure Activity in Genetically Modified Mouse Lines**
*Mentor: Dr. Jing-Qiong (Katty) Kang, Neurology*

Virtual
*Block: 3–4 p.m.*

**11** Jennifer Franklin '22
Human and Organizational Development

IV **Changes in Americans' Musical Tastes Reflect Political Stressors**
*Mentor: Professor Matthew Berger, Computer Science and Computer Engineering*

Virtual
*Block: 3–4 p.m.*

**12** Sophie Goldenberg '23
Medicine, Health and Society

IV **Leftover Opioids Following Pediatric Surgeries**
*Mentor: Professor Amanda Stone, Anesthesiology*

Virtual
*Block: 3–4 p.m.*

**13** Melissa Goldin '22
Molecular and Cellular Biology; History

IV **Increased Cdc13 Binding Stimulates De Novo Telomere Addition Following Double-Strand Breaks**
*Mentor: Professor Katherine Friedman, Biological Sciences*

Virtual
*Block: 3–4 p.m.*

**14** Madilyn Halwes '22
Psychology; Child Development

IV **Perceived Appearance in Adolescents at High Risk for Depression**
*Mentor: Professor Judy Garber, Psychology and Human Development*

Virtual
*Block: 3–4 p.m.*

**15** Chenhang Huang '23
Mathematics; Physics

IV **Two Electrons in Harmonic Confinement Coupled to Light in a Cavity**
*Mentor: Professor Kalman Varga, Physics and Astronomy*

Virtual
*Block: 3–4 p.m.*

**16** Jorgen Jackson '23
Medicine, Health and Society

IV **Enzalutamide Effects**
*Mentor: Professor Paula Hurley, Hematology; Oncology*

Virtual
*Block: 3–4 p.m.*

**17** Olivia Justice '22
Neuroscience; Medicine, Health, and Society

**Changes in CSF Through the Cerebral Aqueduct with Age and Neurodegeneration**
*Mentor: Professor Manus Donahue, Radiology and Radiological Sciences*

Virtual
*Block: 3–4 p.m.*

**18** Sam Kwon '23
Neuroscience

IV **Exploring Dentate Gyrus Circuitry in 22q11 Deletion Syndrome Mice**
*Mentor: Dr. Alan Lewis, Psychiatry*

Virtual
*Block: 3–4 p.m.*

**19** Sungmin Kwon '24
Biomedical Engineering

**Micellular Curcumin for TRAIL Sensitization**
*Mentor: Professor Zhenjiang Zhang, Biomedical Engineering*

Virtual
*Block: 3–4 p.m.*

**20** Catherine McQueen '23
Psychology

IV **Measuring the Impact of 10-Minute and 30-Minute Coloring Interventions on Happiness in the General Public**
*Mentor: Professor Ashleigh Maxcey, Psychology*

Virtual
*Block: 3–4 p.m.*

**21** Sharath Narayan '22
Molecular and Cellular Biology

**Identifying Mutations in RNA Polymerase that Suppress Replication-Transcription Conflicts in Bacteria**
*Mentor: Professor Houra Merrikh, Biochemistry*

Virtual
*Block: 3–4 p.m.*

**22** Gabriela Nguena Jones '24
Neuroscience and Medicine, Health and Society

**Validating Apod as a Marker for Non-Myelinating Schwann Cells**
*Mentor: Professor Bruce Carter, Biochemistry*

Virtual
*Block: 3–4 p.m.*

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

# Virtual Fair Groups

**23** Grace Pulliam '22
Neuroscience; Medicine, Health, and Society; Communication of Science and Technology

**Audiovisual Multisensory Integration in Individuals with Reading and Language Impairments: A Systematic Review and Meta-Analysis**
*Mentor: Professor Tiffany Woynaroski, Hearing and Speech Sciences*

**Virtual**
*Block: 3–4 p.m.*

**24** Ashmita Rajkumar '22
Computer Science

**Prediction of Diabetes Progression Using Statistical Analysis**

**Virtual**
*Block: 3–4 p.m.*

**25** Samantha Schimmel '21
Neuroscience

**Cerebrovascular Remodeling Relates to Longitudinal Structural Brain Outcomes in Older Adults**
*Mentor: Professor Angela Jefferson, Neurology*

**Virtual**
*Block: 3–4 p.m.*

**26** Akaash Seemakurty '24
Computer Science

**Your Phone as a Sensor: NetsBlox**
*Mentor: Professor Akos Ledeczi, Computer Science; Electrical and Computer Engineering*

**Virtual**
*Block: 3–4 p.m.*

**27** Sunil Shenoy '22
Medicine, Health and Society; Psychology

**Cross Cultural Comparisons of Mental Health and Loneliness in English and Spanish Speakers**
*Mentor: Professor Sohee Park, Psychology*

**Virtual**
*Block: 3–4 p.m.*

**28** Karry Su '23
Biological Sciences; Medicine, Health and Society

**COVID-19 Peaks and Vaccination Rates: A State-by-State Analysis**
*Mentor: Professor Allison Leich Hilbun, Biological Sciences*

**Virtual**
*Block: 3–4 p.m.*

**29** Benjamin Van Sleen '23
Computer Engineering; Economics

**Analysis of Supportive and Toxic Behavior within and between Autism-related and Mental Health-related Subreddits**
*Mentor: Professor Tyler Derr, Computer Science*

**Virtual**
*Block: 3–4 p.m.*

**30** Kening Xue '23
Political Science; Economics

**The Investigation on How Regime Type of Countries Affects the Occurrence of Cyber Attacks**
*Mentor: Professor Brenton Kenkel, Political Science*

**Virtual**
*Block: 3–4 p.m.*

**31** Amy Zhang '23
Political Science; Economics

**The Relationship Between COVID-19 Outcomes and Interpersonal Trust**
*Mentor: Professor Elizabeth Zechmeister, Political Science*

**Virtual**
*Block: 3–4 p.m.*



# In-Person Presentations – Group A

**32** Zhizhu Zhang '22
Molecular and Cellular Biology

**2021 Spring Semester Summary Statistics of COVID-19 Data for Vanderbilt and Community**
*Mentor: Professor Ruth Kleinpell, Nursing*

**Virtual**
*Block: 3–4 p.m.*

**33** Cassandra Atzrodt '23
Biochemistry and Chemical Biology

**The Interaction of Alcohol and High-Fat Diet in Fatty Liver Disease Progression**
*Mentor: Dr. John Stafford, Diabetes, Endocrinology and Metabolism*

**Group: A**
*4:30–5:30 p.m.*

**34** Lauren Babb '23
Biomedical Engineering

**Investigating Lipophilic Small-Interfering Ribonucleic Acids for Treatment of Triple Negative Breast Cancer**
*Mentor: Professor Craig Duvall, Biomedical Engineering*

**Group: A**
*4:30–5:30 p.m.*

**35** Julia Beery '23
Child Development; Medicine, Health and Society

**Nonunion in Distal Femur Fractures**
*Mentor: Dr. Daniel Stinner, Orthopaedics and Trauma*

**Group: A**
*4:30–5:30 p.m.*

**36** Priya Bhatt '24
Medicine, Health and Society

**The COVID-19 Experience: An Analysis of Ideology and Information Spread Through Social Media**
*Mentor: Professor Jonathan Metzl, Sociology and Psychiatry*

**Group: A**
*4:30–5:30 p.m.*

**37** Anna Bright '22
Neuroscience

**Midbrain Dopaminergic Neurons as a Future Model of Mitochondrial Dysfunction in Neurodevelopment**
*Mentor: Professor Vivian Gama, Cell and Developmental Biology*

**Group: A**
*4:30–5:30 p.m.*

**38** Kush Chaudhari '24
Molecular and Cellular Biology

**Liver-Targeted Estrogen to Treat Obesity-Associated Cardiovascular Disease**
*Mentor: Dr. John Stafford, Diabetes, Endocrinology and Metabolism*

**Group: A**
*4:30–5:30 p.m.*

**39** Ziche Chen '22
Molecular and Cellular Biology

**Interactions Between LANA and Host Super-Enhancers**
*Mentor: Professor John Karijolich, Pathology, Microbiology and Immunology*

**Group: A**
*4:30–5:30 p.m.*

**40** Fiona Cherry '23
Chemistry

**Determining Cytotoxicity of si-RNA Nanoparticles Using an Immunocompetent Mouse Model**
*Mentor: Professor Craig Duvall, Biomedical Engineering*

**Group: A**
*4:30–5:30 p.m.*

**41** Zoe Crawley '22
Cognitive Studies

**Evaluating Mindfulness-Based Songwriting Intervention in Parents of Children with Developmental Disabilities**
*Mentor: Professor Miriam Lense, Otolaryngology*

**Group: A**
*4:30–5:30 p.m.*

**42** Amber Cui '24
Chemical Engineering

**Isolation of Rodent Microglia to Assess Gene Silencing and Drug Targeting**
*Mentor: Professor Ethan Lippmann, Chemical and Biomolecular Engineering*

**Group: A**
*4:30–5:30 p.m.*

designates an Immersion Vanderbilt project *All times are Central time

# In-Person Presentations – Group A

**43** Xinyi Dai '22
Psychology

**No Mirror Effect in Recognition-Induced Forgetting**
*Mentor: Professor Ashleigh Maxcey, Psychology*
Group: A
*4:30–5:30 p.m.*

**44** Elizabeth Dang '22
Medicine, Health and Society; Communication of Science and Technology

IV **Gene Expression Analysis of Patients with OTULIN Mutations**
*Mentor: Professor Janet Markle, Pathology, Microbiology and Immunology*
Group: A
*4:30–5:30 p.m.*

**45** Patrick Darmawi-Iskandar '23
Electrical Engineering

**Total Ionizing Dose Effects in N-type Carbon Nanotube Field-Effect Transistors**
*Mentor: Professor Lloyd Massengill, Electrical and Computer Engineering*
Group: A
*4:30–5:30 p.m.*

**46** Yining Ding '22
Cognitive Studies

**The Influence of Sequence Reversal on Visual Event Perception**
*Mentor: Professor Daniel Levin, Psychology and Human Development*
Group: A
*4:30–5:30 p.m.*

**47** Anna Eberwein '23
Cellular and Molecular Biology; Medicine, Health and Society

IV **Synaptic Dysfunction in the Drosophila Niemann Pick Type C Disease Model**
*Mentor: Professor Kendal Broadie, Biological Sciences*
Group: A
*4:30–5:30 p.m.*

**48** Jeremiah Egolf '23
Biomedical Engineering

**Combining a Multi-Articular Artificial Gastrocnemius and Powered Ankle: Effects on Transtibial Prosthesis User Gait**
*Mentor: Professor Karl Zelik, Mechanical Engineering*
Group: A
*4:30–5:30 p.m.*

**49** Bryce Emanuel '23
Neuroscience; French

IV **The Role of CaMKIIα in Tactile Behaviors and Autism**
*Mentor: Professor Roger Colbran, Molecular Physiology and Biophysics*
Group: A
*4:30–5:30 p.m.*

**50** Robby Espano '22
English; Molecular and Cellular Biology

**Altered Connectivity of the Anterior Hippocampus in Early Psychosis during Scene Processing**
*Mentor: Professor Maureen McHugo, Psychiatry*
Group: A
*4:30–5:30 p.m.*

**51** Shubham Gulati '22
Biomedical Engineering

**Development of Hybrid PLGA and Endosomolytic Polymer siRNA Nanoparticles**
*Mentor: Professor Craig Duvall, Biomedical Engineering*
Group: A
*4:30–5:30 p.m.*

**52** Taylor Guzi '22
Medicine, Health and Society; Psychology

IV **The Intersections of Culture, Resilience and Mutual Aid**
*Mentor: Professor Dominique Béhague, Medicine, Health and Society*
Group: A
*4:30–5:30 p.m.*

**53** Chloe Hall '23
Public Policy; Data Science Minor

**Nigerian Protest Trends from 2010-20 and COVID Impact Data**
*Mentor: Professor Cassy Dorff, Political Science*
Group: A
*4:30–5:30 p.m.*

**54** Tracey He '22
Medicine, Health and Society

IV **Role of Pyrophosphate in Regulating Fibrin Deposition in Damaged Tissues**
*Mentor: Professor Jonathan Schoenecker, Orthopaedics*
Group: A
*4:30–5:30 p.m.*

**55** Jamie Huang '23
Medicine, Health and Society; Molecular and Cellular Biology

IV **Characterization of Duc1 Protein in Schizosaccharomyces pombe**
*Mentor: Professor Kathleen Gould, Cell and Developmental Biology*
Group: A
*4:30–5:30 p.m.*

**56** Miya Hugaboom '22
Molecular and Cellular Biology; Medicine, Health and Society

IV **Examining the Evolution of Mitochondrial Genomes in a Group of Closely Related Pathogenic and Non-Pathogenic Fungi**
*Mentor: Professor Antonis Rokas, Biological Sciences*
Group: A
*4:30–5:30 p.m.*

**57** Samantha Josephson '24
Biological Sciences

**Relationship between Glycine and Biomarkers of Cardiometabolic Disease in Adolescents with Obesity**
*Mentor: Babu Balagopal, Obesity and Cardiovascular Research, Nemours Children's Specialty Care*
Group: A
*4:30–5:30 p.m.*

**58** Laith Kayat '23
Neuroscience

IV **Repeated Stress Exposure on Negative Affect During Chronic Ethanol-Induced Abstinence**
*Mentor: Professor Danny Winder, Molecular Physiology and Biophysics*
Group: A
*4:30–5:30 p.m.*

**59** Brennen Keuchel '23
Human and Organizational Development; Molecular and Cellular Biology

**Engineering a Novel Caenorhabditis Elegans Strain to Assess the Role of the Endoplasmic Reticulum in Neurodegeneration**
*Mentor: Professor Kris Burkewitz, Cell and Developmental Biology*
Group: A
*4:30–5:30 p.m.*

**60** Chandu Kona '23
Economics

IV **Investigating Ebola-Specific Antibody Development**
*Mentor: Professor Robert Carnahan, Cancer Biology*
Group: A
*4:30–5:30 p.m.*

**61** Anne Kuckertz '23
Computer Science; Communication of Science and Technology

**Exploration of a Portable Sensor for Non-Invasive Amino Acid Monitoring**
*Mentor: Professor Christina Marasco, Biomedical Engineering*
Group: A
*4:30–5:30 p.m.*

**62** Grace Lee '23
Molecular and Cellular Biology

IV **15-Lipoxygenase Regulation of Platelet Function**
*Mentor: Professor Savanna Starko, Physics and Astronomy*
Group: A
*4:30–5:30 p.m.*

**63** Samuel Leville '23
Chemical and Biomolecular Engineering

**Electrodiffusiophoresis: Measuring Colloidal Dynamics Under Chemical Gradient and Induced AC Electric Field**
*Mentor: Professor Carlos Silvera-Batista, Chemical and Biomolecular Engineering*
Group: A
*4:30–5:30 p.m.*

**64** Kevin Liu '22
Biochemistry; Spanish

**Characterization of Invasiveness and Resistance Under Fluid Shear Stress in Colorectal Cancer Cells**
*Mentor: Professor Michael King, Biomedical Engineering*
Group: A
*4:30–5:30 p.m.*

**65** Joshua Lynch '23
Human and Organizational Development; Medicine, Health, and Society

IV **Gut Hormone (GLP-1) Increases Calcium Entry into Pancreatic Islet Cells**
*Mentor: Professor David Jacobson, Molecular Physiology and Biophysics*
Group: A
*4:30–5:30 p.m.*

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

# In-Person Presentations – Group A

**66** Jinqi Ma '22
Neuroscience; Cognitive Studies

**Glucagon-Like Peptide-1 Receptor Signaling Promotes an Antioxidant and Anti-Inflammatory Response by Increasing the Abundance of Nrf2 in the Nucleus**

*Mentor: Dr. Kevin Niswender, Diabetes, Endocrinology and Metabolism*

Group: A
*4:30–5:30 p.m.*

**67** Mohamed Aziz Medhioub '24
Mechanical Engineering

**Instilling the Illusion of Weight with Localized Force Feedback to the Wrist**

*Mentor: Professor Nilanjan Sarkar, Mechanical Engineering*

Group: A
*4:30–5:30 p.m.*

**68** Margaret Mercante '23
Medicine, Health and Society

**Role of Demographic and Cardiometabolic Disease Factors on Resting Energy Expenditure in Adults**

*Mentor: Professor Heidi Silver, Medicine*

Group: A
*4:30–5:30 p.m.*

**69** Asia Miller '22
Biological Sciences

**Hybridization Through the Lens of Host-Microbiome Interactions**

*Mentor: Professor Seth Bordenstein, Biological Sciences*

Group: A
*4:30–5:30 p.m.*

**70** Karan Mirpuri '23
Communication of Science and Technology; Child Development

**Elevated Morning Testosterone Levels in Prepubertal Adolescents as a Potential Indicator of Early Pubertal Onset in Autism Spectrum Disorder (ASD)**

*Mentor: Professor Blythe Corbett, Psychiatry*

Group: A
*4:30–5:30 p.m.*

**71** Sarah Moore '24
Computer Science; Mathematics

**Reducing Noise in a Neonatal Intensive Care Unit**

*Mentor: Professor Douglas Adams, Civil and Environmental Engineering*

Group: A
*4:30–5:30 p.m.*

**72** Ethan Nguyen '23
Computer Science; Mathematics

**Circle Representation for Medical Object Detection**

*Mentor: Professor Yuankai Huo, Computer Science*

Group: A
*4:30–5:30 p.m.*

**73** Chidiogo Nwakoby '22
Medicine, Health and Society

**Understanding the Perceptions of HIV among Barbers in Nashville to Minimize Disparities in HIV Care**

*Mentor: Dr. Aimalohi Ahonkhai, Infectious Disease*

Group: A
*4:30–5:30 p.m.*

**74** Andrei Olaru '23
Ecology, Evolution and Organismal Biology

**Functional Morphology of the Ediacaran Organism Tribrachidium Heraldicum Revealed by Computational Fluid Dynamics**

*Mentor: Professor Simon Darroch, Earth and Environmental Sciences*

Group: A
*4:30–5:30 p.m.*

**75** Sarah Paik '23
Civil Engineering

**Monitoring of Additive Manufactured Wind Blade Core Structures using Profilometry to Enable Thermal Welding of Advanced Large Blades**

*Mentor: Professor Douglas Adams, Civil and Environmental Engineering*

Group: A
*4:30–5:30 p.m.*



**76** Isabella Paldrmic '22
Molecular and Cellular Biology; Medicine, Health and Society

**The Role of Glp1r Positive Neurons in the Lateral Septum in Mediating Stress-Induced Overconsumption**

*Mentor: Professor Julio Ayala, Molecular Physiology and Biophysics*

Group: A
*4:30–5:30 p.m.*

**77** Amy Pang '23
Chemical Engineering

**Tracking Translation of Janus Particles in an AC Field**

*Mentor: Professor Carlos Silvera-Batista, Chemical and Biomolecular Engineering*

Group: A
*4:30–5:30 p.m.*

**78** Sophia Pannullo '23
Biomedical Engineering

**Lateral and Radial Flow Design Comparison in a Low-Resource Sickle Cell Diagnostic**

*Mentor: Professor Christina Marasco, Biomedical Engineering*

Group: A
*4:30–5:30 p.m.*

**79** Gillian Patton '23
Molecular and Cellular Biology

**Biofilm Formation and its Effects on Escherichia coli's Adaptive Potential in Structured Environments**

*Mentor: Professor Megan Behringer, Biological Sciences*

Group: A
*4:30–5:30 p.m.*

**80** Karen Pu '24
Computer Science

**Designing a Novel Hemagglutinin Trimer to Improve Influenza Vaccine Efficiency**

*Mentor: Professor Jens Meiler, Chemistry*

Group: A
*4:30–5:30 p.m.*

**81** Ying (Marina) Qian '23
Electrical Engineering; Mathematics

**Data Analysis of Submarine Volcanic Ash Form Mid-Ocean Ridges**

*Mentor: Professor Kristen Fauria, Earth and Environmental Sciences*

Group: A
*4:30–5:30 p.m.*

**82** Emma Rafatjoo '22
Neuroscience; Medicine, Health and Society

**Elevated Morning Testosterone Levels in Prepubertal Adolescents as a Potential Indicator of Early Pubertal Onset in Autism Spectrum Disorder (ASD)**

*Mentor: Professor Blythe Corbett, Psychiatry*

Group: A
*4:30–5:30 p.m.*

**83** Akhila Ramgiri '23
Chemical and Biomolecular Engineering; Biomedical Engineering

**Investigating the Effect of Ionizing Radiation on Stromal Cells in the Tumor Microenvironment**

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

Group: A
*4:30–5:30 p.m.*

**84** Aarushi Rohila '22
Psychology

**"Me, Myself, and I": An Analysis of Underrepresented Students' Perspectives on Their Postsecondary Trajectories**

*Mentor: Professor Bethany Rittle-Johnson, Psychology and Human Development*

Group: A
*4:30–5:30 p.m.*

**85** Schyler Rowland '24
Biomedical Engineering

**Fluid Shear Stress Enhances Dendritic Cell Activation**

*Mentor: Professor Michael King, Biomedical Engineering*

Group: A
*4:30–5:30 p.m.*

**86** Jazlyn Selvasingh '23
Biochemistry

**Ultra-Dark Nanodiscs for Assessing Membrane Protein Stability by nanoDSF**

*Mentor: Professor Kaitlyn Ledwitch, Chemistry*

Group: A
*4:30–5:30 p.m.*

designates an Immersion Vanderbilt project *All times are Central time

# In-Person Presentations – Group A

**87** Shiva Senthilkumar '23
Neuroscience

**Shining a (d)Light: Exploring Visual Stimulus-Evoked Dopamine Release in Mice**
*Mentor: Dr. Elliott Robinson, Pediatrics, Cincinnati Children's Hospital Medical Center*

Group: A
*4:30–5:30 p.m.*

**88** Veeraj Shah '24
Biology

**Local and Systemic RNA interference (RNAi) Drug Delivery Strategies to Prevent and Treat Osteoarthritis**
*Mentor: Professor Craig Duvall, Biomedical Engineering*

Group: A
*4:30–5:30 p.m.*

**89** Peter Shen '21
Biochemistry

**Matrix-Bound Water as a Determinant of Fatigue Life in Trabecular Bone**
*Mentor: Professor Jeffry Nyman, Orthopaedics and Rehabilitation*

Group: A
*4:30–5:30 p.m.*

**90** Yuxuan Shi '22
Electrical Engineering; Economics

**Eosinophilic Esophagitis Multi-Label Feature Recognition on Whole Slide Imaging Using Transfer Learning**
*Mentor: Professor Yuankai Huo, Computer Science*

Group: A
*4:30–5:30 p.m.*

**91** Athira Sivadas '23
Biochemistry; Medicine, Health and Society

**Modulation of Unfolded Protein Response by SARS-CoV-2 Proteins**
*Mentor: Professor Lars Plate, Chemistry, Biological Sciences*

Group: A
*4:30–5:30 p.m.*

**92** Anusha Srivastava '22
Medicine, Health and Society; Molecular and Cellular Biology

**Role of Outer Membrane Proteins in Helicobacter pylori Biofilm Formation**
*Mentor: Dr. Timothy Cover, Pathology, Microbiology and Immunology*

Group: A
*4:30–5:30 p.m.*

**93** Heng Sun '22
Biomedical Engineering; Mathematics

**Development of a Comprehensive Open-Source Radiofrequency Pulse Design Library for Magnetic Resonance Imaging**
*Mentor: Professor Will Grissom, Biomedical Engineering*

Group: A
*4:30–5:30 p.m.*

**94** Kenny Ta '23
Chemistry; Medicine, Health and Society

**Targeting Genetic Drivers in Pancreatic Cancer**
*Mentor: Professor Kathleen DelGiorno, Cell and Developmental Biology*

Group: A
*4:30–5:30 p.m.*

**95** Claire Tate '24
Undeclared

**Association Between Adolescents' Dietary Quality, Cardiometabolic Risk and Adiposity: A Prospective Cohort Study**
*Mentor: Professor Chelsea Kracht, Pediatric Obesity and Health Behavior, Pennington Biomedical Research Center*

Group: A
*4:30–5:30 p.m.*

**96** Stella Wang '23
Psychology

**Comparing Outcomes of Competency Evaluations for Defendants with Intellectual Disability**
*Mentor: Professor Mary Wood, Clinical Psychiatry and Behavioral Sciences*

Group: A
*4:30–5:30 p.m.*

**97** Jiawei Wang '23
Medicine, Health and Society; Neuroscience; History of Art

**Optimization of HCR-FISH for Detection of Intestinal Stem Cells and Differentiated Cell Types**
*Mentor: Professor Ken Lau, Cell and Developmental Biology*

Group: A
*4:30–5:30 p.m.*

**98** Emma Wheat '23
Biomedical Engineering

**Multiplex Assay to Detect Seneca Virus A and Foot and Mouth Disease Virus without RNA Extraction using Adaptive RT-PCR**
*Mentor: Professor Frederick Haselton, Biomedical Engineering*

Group: A
*4:30–5:30 p.m.*

**99** Caroline Wilkerson '22
Cognitive Studies; Medicine, Health and Society

**Caregiver Implemented Communication Intervention Promotes Child Engagement in Very Young Children with ASD**
*Mentor: Professor Ann Kaiser, Education and Human Development*

Group: A
*4:30–5:30 p.m.*

**100** Joshua Woods '22
Anthropology

**Heart Health in the Heartland: The Sociocultural Salience of Genetics and Family History**
*Mentor: Professor T.S. Harvey, Anthropology*

Group: A
*4:30–5:30 p.m.*

**101** Clayton Wright '22
Computer Science

**Cyber-Physical Authentication of Additively Manufactured Components**
*Mentor: Professor Jules White, Computer Science*

Group: A
*4:30–5:30 p.m.*

**102** Danny Xu '23
Psychology; Medicine, Health and Society

**How STEM Career Aspiration, its Gender Disparities and Students' Math and Science Learning Motivation Vary by the Definition of STEM**
*Mentor: Professor Bethany Rittle-Johnson, Psychology and Human Development*

Group: A
*4:30–5:30 p.m.*

**103** Andrew Yen Engel '22
Molecular and Cellular Biology

**Purification of Membrane Trafficking Proteins**
*Mentor: Professor Lauren Jackson, Biological Sciences*

Group: A
*4:30–5:30 p.m.*

**104** Brian Yoon '23
Medicine, Health and Society

**SJS, TEN, and SJS-TEN Overlap in the FDA Adverse Event Reporting System (FAERS)**
*Mentor: Dr. Elizabeth Phillips, Medicine*

Group: A
*4:30–5:30 p.m.*

**105** Davis Zakary '24
Biomedical Engineering

**Incorporation of Non-Natural Amino Acids into Computational Peptide Design**
*Mentor: Professor Jens Meiler, Chemistry*

Group: A
*4:30–5:30 p.m.*

**106** Zhihan Zhao '23
Biochemistry and Chemical Biology; Mathematics

**Shear-Thinning and Designable Responsiveness Supramolecular DNA Hydrogels Based on Chemically Bonded Branched DNA**
*Mentor: Professor Dongsheng Liu, Chemistry, Tsinghua University*

Group: A
*4:30–5:30 p.m.*

designates an Immersion Vanderbilt project *All times are Central time

# In-Person Presentations – Group B

**107** Monica Alonso '22
Psychology; Sociology

**Latinx Mothers' Beliefs and Values about the Psychosocial Development of their Child with Language Development Delays**

Group: B
*5:30–6:30 p.m.*

**108** Tucker Apgar '23
Chemical Biology

**A Gene and Protein Database of Common Monogenic Diseases**

*Mentor: Professor Charles Sanders, Biochemistry*

Group: B
*5:30–6:30 p.m.*

**109** Minna Apostolova '22
Biochemistry and Chemical Biology

**Self-Antigen Abundance Determines Tolerant T Cell Persistence**

*Mentor: Professor Mary Philip, Medicine*

Group: B
*5:30–6:30 p.m.*

**110** Mina Aziz '23
Biochemistry; Neuroscience

**Polymersome Formation Via Flash Nanoprecipitation (FNP) Induces Immunological Activity to Improve Cancer Immunotherapy**

*Mentor: Professor John Wilson, Chemical and Biomolecular Engineering*

Group: B
*5:30–6:30 p.m.*

**111** Shamel Basaria '24
Neuroscience; Medicine, Health and Society

**Analyzing Novel In-Born Errors of Immunity Utilizing Cytometry by Time-of-Flight**

*Mentor: Professor Janet Markle, Pathology, Microbiology and Immunology*

Group: B
*5:30–6:30 p.m.*

**112** Westin Bate '23
Biomedical Engineering

**Investigating the Role of Endocytosis in the Regulation of Glutamate Receptors**

*Mentor: Professor Kendal Broadie, Cell and Developmental Biology and Pharmacology*

Group: B
*5:30–6:30 p.m.*

**113** Max Beck '23
Biochemistry and Chemical Biology

**Pharmacological and Mutagenesis Mediated Rescue of CFTR**

*Mentor: Professor Lars Plate, Chemistry, Biological Sciences*

Group: B
*5:30–6:30 p.m.*

**114** Abigail Boldt '22
Chemistry

**Physical Activity and Exercise in Adolescent and Young Adult Cancer Survivors: A Review on the Current Studies**

*Mentor: Dr. Tammy Sajdyk, Pediatrics, Indiana University School of Medicine*

Group: B
*5:30–6:30 p.m.*

**115** Alyssa Bolster '22
Anthropology; Law, History and Society

**A Transition from Tradition: Employing TA3 and Traditional Age and Sex Estimation Methods to Study Paleodemography in Umm an-Nar Arabia**

*Mentor: Professor Lesley Gregoricka, Bioarcheology, University of South Alabama*

Group: B
*5:30–6:30 p.m.*

**116** Lucy Britto '22
Biomedical Engineering

**Autophagy is Upregulated in Irradiated Fibroblasts**

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

Group: B
*5:30–6:30 p.m.*

**117** Whitney Brown '22
Molecular and Cellular Biology

**FOXP3 Orchestrates Oxidative Metabolism Via the NAD Salvage Pathway in ccRCC**

*Mentor: Professor Kimryn Rathmell, Medicine*

Group: B
*5:30–6:30 p.m.*

**118** Hayes Chatham '22
Medicine, Health and Society; Molecular and Cellular Biology

**Automation of the Addiction Behaviors Checklist: Identifying Opioid Use Disorder in EHR-Based Clinical Notes**

*Mentor: Professor Alvin Jeffery, Nursing*

Group: B
*5:30–6:30 p.m.*

**119** Yiting Chen '22
Biomedical Engineering; Applied Mathematics

**Brain Genomics Project**

*Mentor: Professor Mikail Rubinov, Biomedical Engineering*

Group: B
*5:30–6:30 p.m.*

**120** Hannah Craft '22
Biochemistry; Art

**Determining Antiarrhythmic Properties of ent-Verticilide Through Analogue Syntheses**

*Mentor: Professor Jeffrey Johnston, Chemistry*

Group: B
*5:30–6:30 p.m.*

**121** Elijah Crenshaw-Smith '24
Sociology

**The Unseen Process of Equity: Examining How US Local Arts Agencies Approach Cultural Equity**

*Mentor: Professor Daniel Cornfield, Sociology*

Group: B
*5:30–6:30 p.m.*

**122** Lorena Cruz '23
Chemical Engineering

**Developing a Novel Polymeric Nanoparticle System Designed to Enhance Loading of Hydrophobic and Hydrophilic Peptides and Nucleic Acid Adjuvants**

*Mentor: Professor John Wilson, Chemical and Biomolecular Engineering*

Group: B
*5:30–6:30 p.m.*

**123** Parth Dahima '24
Political Science

**Politics of Power: Seizing Control of Political Institutions**

*Mentor: Professor John Dearborn, Political Science*

Group: B
*5:30–6:30 p.m.*

**124** Bethlehem Daniel '22
Neuroscience; Communication of Science and Technology

**Evaluating Public Trust of the U.S. Federal Government During the Early Stages of the COVID-19 Pandemic**

*Mentor: Professor David Wright, Chemistry*

Group: B
*5:30–6:30 p.m.*

**125** Vikas Dodda '22
Psychology

**Hippocampal Volume Change in Human Infancy: Exploring Stress as a Predictor of Change**

*Mentor: Professor Kathryn Humphreys, Psychology and Human Development*

Group: B
*5:30–6:30 p.m.*

**126** Andy Du '23
Mechanical Engineering

**Metasurface-Based Optical Holography Using Nanosphere Lithography**

*Mentor: Professor Jason Valentine, Mechanical Engineering*

Group: B
*5:30–6:30 p.m.*

**127** Tiger Du '23
Computer Science; Physics

**Deconvolution of the Energetic-Particle Count Rates of Voyager 1 and Voyager 2 to Identify the Causes of Dropouts and Enhancements and to Characterize the Structure of the Heliopause**

*Mentor: Professor Vladimir Florinski, Space Science, University of Alabama in Huntsville*

Group: B
*5:30–6:30 p.m.*

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

# In-Person Presentations – Group B

**128** Rebecca Dubin ’23
Biology

**Using Hematopoietic Stem Cell Expansion Methods to Measure Response to Inflammatory Microenvironments**
*Mentor: Dr. Brent Ferrell, Medicine*

Group: B
*5:30–6:30 p.m.*

**129** Jasmin Elnaggar ’24
Undeclared

**Interactions of Alcohol and Simian immunodeficiency Virus Infection on Expression of Alzheimer’s-Associated Proteins in Plasma Extracellular Vesicles**
*Mentors: Dr. Liz Simon, Dr. Scott Edwards, and Dr. Patricia Molina, Physiology, Louisiana State Health Sciences Center New Orleans*

Group: B
*5:30–6:30 p.m.*

**130** Brianna Freeman ’23
Human and Organizational Development; Child Studies

**La Trenza: Intersectional Feminism Is for Everyone (In Response to Carol Lee Bacchi’s What’s the Problem Public Policy Framework)**
*Mentor: Professor Sayil Camacho, Leadership, Policy and Organizations*

Group: B
*5:30–6:30 p.m.*

**131** Gracie Gumm ’23
Civil Engineering

**Effect of Custom Velocity Controls on Traffic Energy Usage in I-24 Flow**
*Mentor: Professor Daniel Work, Civil and Environmental Engineering*

Group: B
*5:30–6:30 p.m.*

**132** Ashwin Gupta ’21
Medicine, Health and Society

**Correlates and Prognostic Significance of B-type Natriuretic Peptide in Patients with Sickle Cell Hemoglobinopathies**
*Mentor: Dr. Deepak Gupta, Cardiovascular Medicine*

Group: B
*5:30–6:30 p.m.*

**133** Corinne Hamrick ’22
Medicine, Health and Society

**Treatment Over the Objection of Incapacitated Patients in Acute Care Hospitals: A Systematic Literature Review**
*Mentor: Professor Joseph Fanning, Biomedical Ethics and Society*

Group: B
*5:30–6:30 p.m.*

**134** Lilly He ’22
Molecular and Cellular Biology; Spanish

**The Effects of CD148 Q276P/R326Q Polymorphisms on EGF-Induced Cell Proliferation and Signaling in A431D Epidermoid Cancer Cells**
*Mentor: Dr. Takamune Takahashi, Nephrology*

Group: B
*5:30–6:30 p.m.*

**135** Chetan Immanneni ’22
Neuroscience; Medicine, Health, and Society

**Genetic Modifiers of Rett Syndrome**
*Mentor: Professor Jeffrey Neul, Pediatrics*

Group: B
*5:30–6:30 p.m.*

**136** Alyssa Kerscher ’23
Civil Engineering; Architecture and the Built Environment

**Modal Analysis of BARC Assembly Structure to Prevent Failure in Satellites**
*Mentor: Professor Douglas Adams, Civil and Environmental Engineering*

Group: B
*5:30–6:30 p.m.*

**137** Ashley Kim ’22
Human and Organizational Development; Medicine, Health and Society; Business Minor

**Are Dental Services Located Where They Need to Be: A Tennessee Case Study**
*Mentor: Professor Yolanda McDonald, Human and Organizational Development*

Group: B
*5:30–6:30 p.m.*

**138** Ashwin Kumar ’22
Computer Science; Neuroscience

**Mapping Pediatric Spinal Cord Development with Age**
*Mentor: Professor Bennett Landman, Electrical Engineering*

Group: B
*5:30–6:30 p.m.*

**139** Michelle Kwon ’23
Neuroscience; History of Art

**Experience-Dependent Dopaminergic Plasticity Following Contingency Learning**
*Mentor: Professor Cody Siciliano, Pharmacology*

Group: B
*5:30–6:30 p.m.*

**140** Vy Le ’23
Neuroscience

**Investigating the Role of PMP22 in a Rodent and Cellular Model of Charcot-Marie-Tooth Disease**
*Mentor: Professor Bruce Carter, Biochemistry*

Group: B
*5:30–6:30 p.m.*

**141** Tiffany-Chau Le ’23
Biomedical Engineering

**Linking Membrane Organization and Diet-Induced Obesity**
*Mentor: Professor Todd Graham, Biological Sciences*

Group: B
*5:30–6:30 p.m.*

**142** John Lee ’23
Chemistry; Computer Science

**Analyzing Amyloid Aggregation Using Two-Dimensional infrared Spectroscopy**
*Mentor: Professor Lauren Buchanan, Chemistry*

Group: B
*5:30–6:30 p.m.*

**143** Linxuan Li ’24
Biomedical Engineering

**Utilizing Cellular Engineering for Better Stem-Cells Based Neural Organoids**
*Mentor: Professor Jonathan Brunger, Biomedical Engineering*

Group: B
*5:30–6:30 p.m.*

**144** Peize Li ’23
Computer Science

**Filter Design for Infrared Gas Sensors Using SVD Dimension Reduction**
*Mentor: Professor Jason Valentine, Mechanical Engineering*

Group: B
*5:30–6:30 p.m.*

**145** Shuyang Lin ’22
Biology

**Modulation of COX-2:P2Y6 Signaling Pathway**
*Mentor: Professor Lawrence Marnett, Biochemistry, Chemistry and Pharmacology*

Group: B
*5:30–6:30 p.m.*

**146** Shihe Luan ’22
Human and Organizational Development; German Studies

**Using Video Data to Examine How Families Teach Their Young Children**
*Mentor: Professor Joanne Golann, Public Policy and Education*

Group: B
*5:30–6:30 p.m.*

**147** Aakash Manapat ’23
Chemistry

**Predicting PFAS Contamination with Deep Learning Tools**
*Mentor: Professor Yolanda McDonald, Human and Organizational Development*

Group: B
*5:30–6:30 p.m.*

**148** Clara McMillan ’22
English

**The Role of Fashion in Southern Literature: The Dynamics of Power and Petticoats**
*Mentors: Professor Colin Dayan, Humanities; and Professor Alexandra Sargent-Capps, Theatre*

Group: B
*5:30–6:30 p.m.*

designates an Immersion Vanderbilt project *All times are Central time

# In-Person Presentations – Group B

**149** Jessica Mo '22
Medicine, Health and Society

**Using Data Science metHuman and Organizational Developments to Investigate the Effects of Environmental Factors on the Composition of the Gut Microbiota**
*Mentor: Professor Mariana Byndloss, Pathology, Microbiology and Immunology*
Group: B
*5:30–6:30 p.m.*

**150** Sara Morice '23
Biomedical Engineering

**Characterization of the Direct Write Inkjet Printing Process for Automated Fabrication**
*Mentor: Andriy Sherehiy, Engineering, University of Louisville*
Group: B
*5:30–6:30 p.m.*

**151** Connor Oltman '22
Biomedical Engineering

**Nanoparticles of Fluorocoxib D Enable Endoscopic Visualization of Colorectal Adenomas in Mice**
*Mentor: Professor Jashim Uddin, Biochemistry*
Group: B
*5:30–6:30 p.m.*

**152** Tara O'Shea '22
Biochemistry and Chemical Biology

**Developing an Assay to Monitor Ubiquitination at Drosophila melanogaster Replication Forks**
*Mentor: Professor Jared Nordman, Biological Sciences*
Group: B
*5:30–6:30 p.m.*

**153** Reethi Padmanabhan '23
Biomedical Engineering

**Glucose Metabolism Regulation Impacts Migratory Behavior of Weakly Migratory Breast Cancer Cells**
*Mentor: Professor Cynthia Reinhart-King, Biomedical Engineering*
Group: B
*5:30–6:30 p.m.*

**154** Jee Hyun Park '22
Biomedical Engineering

**Brain Genomics Project**
*Mentor: Professor Mikail Rubinov, Biomedical Engineering*
Group: B
*5:30–6:30 p.m.*

**155** Lauren Jenna Parker '23
Human and Organizational Development; Environmental Sociology

**Sustainable Fashion Corporate Motivators**
*Mentor: Professor Alexandra Sargent-Capps, Theatre*
Group: B
*5:30–6:30 p.m.*

**156** Trevor Pillow '23
Computer Science

**Analyzing the (Un)Friendship Paradox in Social Media**
*Mentor: Professor Tyler Derr, Computer Science*
Group: B
*5:30–6:30 p.m.*

**157** Catherine Rast '22
Psychology; Neuroscience

**The Effect of Facial Affect Variability on Attenuation of Fear in a Snake-Phobic Population**
*Mentor: Professor Bunmi Olatunji, Psychology*
Group: B
*5:30–6:30 p.m.*

**158** Saksham Saksena '25
Undeclared

**Personalizing Risk Assessment of Atrial Fibrillation and COVID Thrombophilia Using Noninvasive Ultrasound Detection of Microthrombi**
*Mentor: Dr. Sandeep Rajan, Hematology and Oncology*
Group: B
*5:30–6:30 p.m.*

**159** Isabel Schnelle '23
Medicine, Health and Society

**Mutations in the GATA3 C-terminus Disrupt its DNA Binding and Downstream Gene Expression**
*Mentor: Dr. Anna Patrick, Pediatrics and Rheumatology*
Group: B
*5:30–6:30 p.m.*

**160** Joseph Sexton '23
Psychology; Medicine, Health and Society

**Predictive Modeling of Suicidal Ideation in Patients with Huntington's Disease**
*Mentor: Dr. David Isaacs, Neurology*
Group: B
*5:30–6:30 p.m.*

**161** Elijah Sheridan '22
Physics; Mathematics

**Machine Learning for Novel Particle Discovery at the Large Hadron Collider**
*Mentor: Professor Alfredo Gurrola, Physics and Astronomy*
Group: B
*5:30–6:30 p.m.*

**162** Amanda Sisung '22
Molecular and Cellular Biology

**Sepsis as an Endothelial Disease**
*Mentor: Professor Joyce Cheung-Flynn, Surgery*
Group: B
*5:30–6:30 p.m.*

**163** Ian Smith '22
Neuroscience; English

**SENSE Theatre: A Novel Peer Intervention Program Improving Social Cognition in Autism**
*Mentor: Professor Blythe Corbett, Psychiatry*
Group: B
*5:30–6:30 p.m.*

**164** Mariana Smith '23
Mechanical Engineering

**Origami-Inspired Continuum Robot for Noninvasive Surgery**
*Mentor: Professor Robert Webster, Mechanical Engineering*
Group: B
*5:30–6:30 p.m.*

**165** Kate Spears '23
Biochemistry and Chemical Biology

**Assessing Need for the Type 3 Serotonin Receptor in Maintenance of Bladder Innervation and Function**
*Mentor: Professor Michelle Southard-Smith, Genetic Medicine*
Group: B
*5:30–6:30 p.m.*

**166** Aparna Srinivasan '23
Neuroscience; Psychology

**The Use of Blink Timing as a Prosodic Communicative Marker in Infant-Directed Singing Interactions**
*Mentor: Professor Miriam Lense, Otolaryngology*
Group: B
*5:30–6:30 p.m.*

**167** Bethanie Stauffer '22
Chemistry; Medicine, Health and Society

**Optimization of Proteomics Analysis of Cerebrospinal Fluid in Alzheimer's Disease**
*Mentor: Professor Renã Robinson, Chemistry*
Group: B
*5:30–6:30 p.m.*

**168** Janet Stefanov '22
Mathematics; Russian; Economics

**Social Security Reform in the Presence of Informality: Undoing the Chilean Reform**
*Mentor: Professor Kathleen McKiernan, Economics*
Group: B
*5:30–6:30 p.m.*

**169** Hannah Stepp '23
Biomedical Engineering

**Automated Cyclical Hybridization of Dumbbell DNA Facilitates Non-Enzymatic Low-Resource Detection of Schistosomiasis**
*Mentor: Professor Frederick Haselton, Biomedical Engineering*
Group: B
*5:30–6:30 p.m.*

**170** Ashley Suh '23
Medicine, Health and Society; Communication of Science and Technology

**Identifying OUD in EHR Data: Are We Looking in the Right Place?**
*Mentor: Professor Lori Schirle, Nursing*
Group: B
*5:30–6:30 p.m.*

designates an Immersion Vanderbilt project *All times are Central time

# In-Person Presentations – Group B

**171** Arthur Sung '23
Computer Science

**Effect of Custom Velocity Controls on Traffic Energy Usage in I-24 Flow**
*Mentor: Professor Daniel Work, Civil and Environmental Engineering*

Group: B
*5:30–6:30 p.m.*

**172** Nina Susich '22
Bassoon Performance; Earth and Environmental Sciences

**Geochemical Records of Southern Caribbean Hydroclimate Variability during the Holocene from Curaçao Speleothems**
*Mentor: Professor Jessica Oster, Earth and Environmental Sciences*

Group: B
*5:30–6:30 p.m.*

**173** Sydney Takemoto '23
Cognitive Studies

**Enhancing Parental Sensitivity through the Parent–Child Interaction Intervention**
*Mentor: Professor Kathryn Humphreys, Psychology and Human Development*

Group: B
*5:30–6:30 p.m.*

**174** Natalie Thomas '22
Biomedical Engineering

**Characterizing Provider Workload in the Neonatal Intensive Care Unit**
*Mentor: Professor Wael Alrifai, Neonatology*

Group: B
*5:30–6:30 p.m.*

**175** Kevin Udomwongsa '22
Chemistry

**Effect of Ligand Substitution on π-Arene Binding Affinities**
*Mentor: Professor Nathan Schley, Chemistry*

Group: B
*5:30–6:30 p.m.*

**176** Long Viet Viet Than '22
Chemical Engineering; Chemistry

**Mixed Photosystem I and Cytochrome c Films for Biohybrid Solar Energy Conversion**
*Mentor: Professor G. Kane Jennings, Chemical and Biomolecular Engineering*

Group: B
*5:30–6:30 p.m.*

**177** Sophia Viner '23
Mechanical Engineering

**Design and Fabrication of Soft Robots Mimicking Lamprey Locomotion**
*Mentor: Professor Kevin Galloway, Mechanical Engineering*

Group: B
*5:30–6:30 p.m.*

**178** Victoria Vuong '23
Biochemistry

IV **Quantification of Ash and Foraminifera at the Mid-Atlantic Ridge**
*Mentor: Professor Kristen Fauria, Earth and Environmental Sciences*

Group: B
*5:30–6:30 p.m.*

**179** Joanna Wang '22
Mathematics, Physics

**Controlling Outlier Contamination in Multimessenger Time-Domain Searches for Supermasssive Binary Black Holes**
*Mentor: Professor Stephen Taylor, Physics and Astronomy*

Group: B
*5:30–6:30 p.m.*

**180** Elisabeth Wood '23
Chemistry; History

**Powered by Plants: The Optimization of a PS1-Based Biohybrid Solar Cell**
*Mentor: Professor David Cliffel, Chemistry*

Group: B
*5:30–6:30 p.m.*

**181** Sarah Woronko '22
Neuroscience; Medicine, Health and Society

**A Novel Probe of Attentional Bias for Threat in Specific Phobia: Application of the "MouseView" Approach**
*Mentor: Professor Bunmi Olatunji, Psychology*

Group: B
*5:30–6:30 p.m.*

**182** Katherine Xie '23
Biomedical Engineering

**Simulating a MEMS Memory Cell**
*Mentor: Professor Shamus McNamara, Engineering, University of Louisville*

Group: B
*5:30–6:30 p.m.*

**183** Yutian Yang '22
Human and Organizational Development

**School-Level Budgeting: Principal's Resource Allocation Decisions and the Promise of Equity**
*Mentor: Professor Christopher Candelaria, Public Policy and Education*

Group: B
*5:30–6:30 p.m.*

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

IV **Negative Regulation of Immunity**
*Mentor: Professor Ann Tate, Biological Sciences*

Group: B
*5:30–6:30 p.m.*

**185** Jiawei Zhu '23
Computer Science

**A Hierarchal Human-in-the-Loop Framework with Non-Cancer Pathology Centric Deep Learning**
*Mentor: Professor Yuankai Huo, Computer Science*

Group: B
*5:30–6:30 p.m.*

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

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.

For more information on undergraduate research, please visit the Undergraduate Research website at vanderbilt.edu/undergraduate-research. Contact the Office of Immersion Resources with questions: immersion@vanderbilt.edu.