



# COLLEGE OF ARTS & SCIENCES

## UNDERGRADUATE SHOWCASE

May 5, 2022

Each semester the College of Arts & Sciences hosts a research and creative activity showcase for undergraduate students to present their work to the campus community.

### SHOWCASE SESSIONS

1. 9:30 am – 10:45 am
2. 11:00 am – 12:15 pm
3. 12:30 pm – 1:45 pm
4. 2:00 pm – 3:15 pm

### PRESENTATIONS & PRESENTERS

#### Session 1 | 9:30 – 10:45 am

#### **Stereotypes of Aging: The Role of Perceived Warmth and Competence**

**Authors, Majors:**

Victor Anselmo, Pre-Physical Therapy  
Payton Baumann, Pre-Occupational Therapy  
Audrey Engstrom, Psychology  
Alexis Pitchford, Psychology and Criminal Justice  
Josselyn Walker, Psychology

**Course:** PSYC 304

**Faculty Advisor:** Heather Terrell

#### **Dog Ownership and Well-being**

**Author, Major:**

Chesney Braun, Criminal Justice and Sociology

**Course:** SOC 475

**Faculty Advisor:** Daphne Pedersen

#### **Religious Disbelief and Analytic Thinking**

**Authors, Majors:**

Lilly Christen, Psychology and Criminal Justice  
Paige Fiebiger, Psychology  
Lexi Miller, Psychology  
Madison Phillips-Bischoff, Psychology  
Adam Zavalney, Pre-Physical Therapy

**Course:** PSYC 304

**Faculty Advisor:** Heather Terrell

#### **Offense Type and Parole Status**

**Author, Major:**

Chantel Crawford, Criminal Justice and Sociology

**Course:** SOC 475

**Faculty Advisor:** Daphne Pedersen

#### **Precarious Gender Roles: Perceptions of Masculinity and Femininity**

**Authors, Majors:**

Adelyn Emter, Psychology  
Jaxon Erie, Psychology  
Madison Gudim, Psychology  
Elise Ramberg, Pre-Occupational Therapy  
Alyssa Thompson, Psychology

**Course:** PSYC 304

**Faculty Advisor:** Heather Terrell

#### **Offender Demographics and Reoffence**

**Author, Majors:**

Sofia Hansen, Sociology, Psychology, Social Science, and Criminal Justice

**Course:** SOC 475

**Faculty Advisor:** Daphne Pedersen

#### **Parents in the Workplace: Warmth vs. Competence**

**Authors, Majors:**

Emerson Hoornaert, Psychology and Pre-Dentistry  
Anna Seefeldt, Psychology and Pre-Medicine  
Alayna Frentress, Psychology  
Alyssa Gaber, Psychology

**Course:** PSYC 304

**Faculty Advisor:** Heather Terrell



## Identifying Binding Sites of SNAIL on DNA and RNA

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**Author, Major:**

Jackson Hopfauf, Chemistry

**Course:** CHEM 495

**Faculty Advisor:** Archana Dhasarathy

## Stem Cell Treatment of Type 1 Diabetes Mellitus

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**Author, Major:**

Mollie Hostetter, Biology: Professional Health Sciences

**Course:** HON 489

**Faculty Advisor:** Tristan Darland

## Analyzing Pollutants in the Minnesota River Basin

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**Author, Major:**

Jonah Johannes, Geography, Environmental Sciences

**Course:** GEOG 454

## Taxonomic bias in witnessing public response to Facebook posts by the Great Smoky Mountains National Park

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**Author, Major:**

Christie Johnson, Social Science

**Course:** BIOL 439

**Faculty Advisor:** Kathryn Yurkonis

## Juvenile Delinquency: The Impact of Parental Supervision and Structure

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**Author, Major:**

Hayle Knudson, Criminal Justice and Sociology

**Course:** SOC 475

**Faculty Advisor:** Daphne Pedersen

## The effects of climate change on wine production in the Western United States

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**Author, Major:**

Sadey Koch, Environmental Studies

**Course:** GEOG 454

## Interpersonal Skills Intervention (ISI)

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**Author, Major:**

Isabelle Kremeier, Psychology

**Faculty Advisor:** RaeAnn Anderson

## Observations of Public Services Throughout Current Grand Forks and Future Developments

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**Authors, Majors:**

Briana Krupinsky, Chemistry

Kincaid Rowbotham, Biology

Nathan Moe, Biology

**Course:** MATH 460

**Faculty Advisors:** Ryan Zerr, Jeremiah Bartz

## Investigation of Chronic Inflammation and its etiological purpose in a Mouse Model of Alzheimer's disease

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**Author, Major:**

Ronak Kumar, Chemistry

**Course:** CHEM 495

**Faculty Advisor:** Kumi Nagamoto-Combs

## Number of Officers and Use of Police Force

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**Author, Major:**

Jayden Laxdal, Criminal Justice and Sociology

**Course:** SOC 475

**Faculty Advisor:** Daphne Pedersen

## Impact of Structural Racism on the Health of Elderly BIPOC Populations

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**Author, Major:**

Alexus Meduna, Biology

**Course:** HON 489

**Faculty Advisor:** Merie Kirby

## Deviant Behavior and The Relationship with Teammates/Coaches

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**Author, Major:**

Jake Oliphant, Criminal Justice and Sociology

**Course:** SOC 475

**Faculty Advisor:** Daphne Pedersen

## Advances in the Preparation and Applications of Palladacycles

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**Author, Major:**

Cole O'Neill, Chemistry and Forensic Science

**Course:** CHEM 495

**Faculty Advisor:** Irina Smoliakova

## Hormonal Birth Control in the 21st Century

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**Author, Major:**

Autumn Paluck, Biology, Honors

**Course:** HON 489

**Faculty Advisors:** Rebecca Simmons, Rebecca Rozelle-Stone



## Understanding the Forensic Entomology Case Report: An Interdisciplinary Approach

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### Authors, Majors:

Taylor Roehl, Forensic Science and German Studies  
Course: HON 489  
Faculty Advisor: Lavinia Iancu

## Adolescents, Video Games, and Predatory Monetization

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### Author, Major:

Cameron Squire, Criminal Justice and Sociology  
Course: SOC 475

## Grass Lawns and Their Affects on Biodiversity and Environmental Health

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### Author, Major:

Hannah Thorpe, Sociology and Environmental Studies  
Course: GEOG 454

## SCP-2 in the brain

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### Authors, Majors:

Alyssa Wallenta, Biochemistry  
Madison Jochim, Grad School  
Course: CHEM 495

## Dominance and Heterosexual Attraction: A Replication

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### Authors, Majors:

Bryanna Wood, Psychology  
Alexzander Burckhard, Psychology  
Henry Rott, Psychology  
Sydney Getz, Psychology  
Course: PSYC 304  
Faculty Advisor: Heather Terrell

## Sneaky Sexism: A Replication Study on Benevolent Sexism

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### Authors, Majors:

Jasmyn Wood, Psychology  
Britian Holter, Psychology  
Eden Sebring, Psychology  
Kaitlin Hazel, Psychology  
Course: PSYC 304  
Faculty Advisor: Heather Terrell

## Session 2 | 11:00 am – 12:15 pm

## Improving Accuracy in Performance Estimates

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### Authors, Majors:

Callie Clabaugh, Psychology and Music  
Reid Milner, Psychology  
Cody Combs, Psychology  
Faculty Advisors: Abigail Kroke, Joelle Ruthig

## Epigenetic regulation of the SPARC gene in bladder cancer

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### Authors, Majors:

Carson Herbert, Biology: Professional Health Sciences  
Jarret Merschman  
Course: BIOL 489, HON 489  
Faculty Advisors: Archana Dhasarathy, Rebecca Simmons

## Methane from Thawing Permafrost: A Cascade of Climate Change

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### Author, Majors:

Cassidy Holth, Atmospheric Science and Environmental Studies  
Course: GEOG 454  
Faculty Advisor: Enru Wang

## Comparisons of the segments along the Belmont corridor

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### Authors, Majors:

Thomas Iken, Physics and Math  
Sierra Walker, Math  
Josh Canfield, Math  
Owen Irvine, Math  
Course: MATH 460  
Faculty Advisors: Ryan Zerr, Jeremiah Bartz

## Mutations in the ddb1 Gene Leads to No Stem Cell Phenotype in Zebrafish

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### Author, Major:

Kailey Jerome, Biology and Psychology, Honors  
Faculty Advisor: Tristan Darland

## Prevalence of Sexual Assault on College Campuses

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### Author, Major:

Isabelle Kremeier, Psychology  
Course: HON 489  
Faculty Advisor: Heather Terrell

## Ocean Acidification and its Impacts on Coral Reefs

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### Author, Major:

Alex Lehto, Environmental Studies

Course: GEOG 454

Faculty Advisor: Enru Wang

## Determination of Priority Metal Pollutants in Grand Forks County Topsoils

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### Author, Major:

August Leopold, Chemistry

Course: CHEM 495

Faculty Advisors: David Pierce, Julia Zhao

## The Rise, Fall, and Future of Biobased Succinic Acid

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### Author, Major:

Nicholas Mathias, Chemistry

Course: CHEM 495

Faculty Advisor: Qianli "Rick" Chu

## Bioinformatics of the PowerPlex Fusion STR Variation in North Dakota

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### Author, Majors:

Nathan Moe, Molecular and Integrative Biology and Forensic Science

Course: HON 489

Faculty Advisor: Igor Ovchinnikov

## Vil-Cre specific Slfn3KO mice exhibit sex-specific differences in lung, stomach, cecum, and proximal colon differentiation markers and Slfn family members expression levels

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### Authors, Majors:

Odele Rajpathy, Biology

Dr. Emilie E. Vomhof-DeKrey,

Elizabeth Preszler, Biology

Dr. Marc D. Basson,

Faculty Advisors: Emilie E. Vomhof-DeKrey, Marc D. Basson

## Evaluation of Histone Modification Patterns within Human (H1) cells

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### Author, Major:

Kincaid Rowbotham, Molecular and Integrative Biology

Course: BIOL 489, HON 489

Faculty Advisors: Barry Milavetz, Rebecca Simmons

## Grand Forks New Development Costs

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### Authors, Majors:

Sothio Suzue-Pan, Electrical Engineering

Mohammed Almarzoogi, Mechanical Engineering

Ahmed Elfarran, Electrical Engineering

Eberechi Ichi, Civil Engineering

Course: MATH 460

Faculty Advisors: Ryan Zerr, Jeremiah Bartz

## Session 3 | 12:30 pm – 1:45 pm

## Comprehensive Resource Notebook for Speech Sound Disorders

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### Author, Major:

Abigail College, Communication Sciences and Disorders

Course: CSD 333 and HON 489

Faculty Advisors: Jessica Foley, Rebecca Rozelle-Stone

## The Spread of Kudzu Vine in the U.S. and Controlling Measures

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### Author, Major:

Anna Dubanoski, Environmental studies

Course: GEOG 454

## Methylation of Histone 3 Lysine 4 and its Transcriptional Role

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### Author, Major:

Lincoln Kranz, Chemistry

Course: CHEM 495

Faculty Advisor: Sergei Nechaev

## Renewable Dimer Synthesis in Green Reaction Medium using Photoenergy

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### Author, Major:

Briana Krupinsky, Chemistry

Course: CHEM 495

Faculty Advisor: Qianli 'Rick' Chu, Julia Zhao

## Eye Disease in North Dakota: A Vision for the Future

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### Authors, Majors:

Rebecca Olien, Biology

Dr. Diane Darland

Course: BIOL 397

Faculty Advisor: Diane Darland





## Effects of Insulin Receptor Activation on the Dopamine Transporter

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Author, Major:

Tess Sether, Chemistry (Biochemistry Emphasis)

Course: CHEM 495

Faculty Advisor: James D. Foster

## Session 4 | 2:00 pm – 3:15 pm

## Growing Optimization of Furfural Production and Utilization

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Author, Major:

Djavdat Azizov, Chemistry

Course: CHEM 495, HON 489

Faculty Advisor: Qianli Chu

## Evaluation of Staten Island's Wetland Services and Environmental Costs of Removal

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Author, Major:

Gracyn Cole, Environmental Studies

Course: GEOG 454

Faculty Advisor: Enru Wang

## The Melting Arctic

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Author, Major:

Lauren Collins, Environmental Studies

Course: GEOG 454

## For new development, will the anticipated tax collections be sufficient to pay for the new infrastructure and on-going associated services for the property?

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Authors, Majors:

Ahmed Elfarran, Electrical Engineering, Mechanical Engineering and Civil Engineering

Mohamed, Almarzoogi

Eberechi, Ichi

Sothio, Suzue-Pan

Course: MATH 460

Faculty Advisors: Ryan Zerr, Jeremiah Bartz

## Understanding The Properties of Non-Natural Amino Acids for Clay-Material Binding

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Authors, Majors:

Sean Glaholt, Chemistry and Physics

Atir Kaunain, Chemical Engineering

Faculty Advisor: Mark Hoffmann

## An overview of the financial and natural impacts caused by wildfires along with wildfire susceptibility thought the United States

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Author, Major:

Theodore Green, General Studies

Course: GEOG 454

Faculty Advisor: 0

## Belief in a Dangerous World as a Predictor of Prejudice Towards Asian-Americans

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Author, Major:

Mary Hamilton, Psychology

Faculty Advisor: Heather Terrell

## Natural gas and Nuclear: American Energy Rhetoric

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Author, Major:

Kaden Hanna, Environmental Studies

Course: GEOG 454

## The Use of Nuclear Warheads as a Source of Sustainable Energy

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Author, Major:

Jacob Harms, Environmental Studies

Course: GEOG 454

## Focal Adhesion Patterns in Neural Crest Cell Differentiation

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Author, Major:

Anna Lambertz, Psychology

Faculty Advisor: Amanda Haage

## Parameters of Exoplanets Qatar-1 and TRES-3 Using Transit Light Curve Data from Martens Observatory

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Author, Major:

Joseph Langenwalter, Physics

Course: PHYS 415

Faculty Advisor: Timothy Young

## Redevelopment's Effect on Property

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Authors, Majors:

Nolan Larson, Mathematics and Economics

Riley Meteychuk, Computer Science

Kaitlin Johnson, Computer Science

Course: MATH 460

Faculty Advisors: Ryan Zerr, Jeremiah Bartz





### **The Atlantic Cod Collapse: What Have We Learned?**

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**Author, Major:**

Justin Lian, Biology and Environmental Studies

**Course:** GEOG 454

### **The Needs Assessment: ASL Interpreters in Counseling Practice in North Dakota**

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**Author, Major:**

Crystal Lundmark, Psychology

**Faculty Advisor:** Andjela Kaur

### **Street Maintenance Costs in the City of Grand Forks**

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**Authors, Majors:**

Manou Mbombo, Mathematics

Jonathan Boateng, Mathematics

Emmanuel Nyarko, Mathematics

**Course:** MATH 460

**Faculty Advisors:** Ryan Zerr, Jeremiah Bartz

### **Building a Muon Detector: How these Invisible Particles are Detected and What We Can Learn From Them**

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**Author, Major:**

Sydney Menne, Physics and Mathematics

**Faculty Advisor:** Tim Young

### **Electric Cars VS. Gas Cars**

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**Author, Major:**

Tyler Smith, Theatre Arts

**Course:** GEOG 454

### **Midwest Tree Diseases: Cause, Spread and Mitigation**

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**Author, Majors:**

Chelsea Timmerman, Environmental Studies and  
Communication

**Course:** GEOG 454

**Thank you for supporting undergraduate research  
in the College of Arts & Sciences**