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UNDERGRADUATE SYMPOSIUM  
ON RESEARCH AND  
CREATIVE ACTIVITY 2026



THE UNIVERSITY OF  
SOUTHERN MISSISSIPPI

# SCHEDULE OF EVENTS

## Saturday April 18, Scianna Hall

7:30 a.m.	Registration Opens
8:30-9:40 a.m.	Oral Presentation Session I
9:50-11 a.m.	Oral Presentation Session II
11:15 a.m.-12:15 p.m.	Lunch and Keynote Address, Trent Lott Center Keynote Speaker: <b>DR. CHRISTOPHER D. ANDERSON</b> James D. Hardy Endowed Chair in Surgery University of Mississippi Medical Center
12:30-2 p.m.	Poster Presentations
2:10-3:20 p.m.	Oral Presentation Session III
3:30-4:30 p.m.	Arts Showcase
4:45 p.m.	Awards Ceremony

# ABOUT THE SYMPOSIUM AND ITS BENEFACTOR



The Symposium began as an annual event in the Department of History under the direction of Dr. Phyllis Jestice. In 2011, Southern Miss alumnus Donald Drapeau began sponsoring a series of awards for student presenters, and the next year, the Symposium was expanded to include students from across campus. The Undergraduate Symposium on Research and Creative Activity has grown since that time to include a keynote address, an arts showcase, and well over 150 student presentations and creative works.

**DONALD DRAPEAU**, the Symposium's generous benefactor, completed his Bachelor of Science in history at Southern Miss before going on to earn a master's degree at the University of Pennsylvania. He has enjoyed great success as founder and chief executive officer

of the Man-Drapeau group of companies, which employs financial engineers and maintains offices on multiple continents. In the 1970s, he founded Drapeau and Co. and became a member of the Chicago Mercantile Exchange.

A Fulbright Fellow in Belgium and a Kress Fellow at the Harvard Business School, Mr. Drapeau is a passionate advocate of undergraduate students at Southern Miss and enjoys the opportunity to foster their sense of initiative, personal drive, and lifelong commitment to education and personal growth. His passion has led not only to his sponsorship of the prizes at the Symposium but also to his support for Drapeau Summer Research and Eagle SPUR Grants, which provide support for students' research and creative projects. In 2016, Mr. Drapeau announced a gift to Southern Miss that resulted in the renaming of the Center for Undergraduate Research to the Drapeau Center for Undergraduate Research. In 2019, he was inducted in the Southern Miss Alumni Hall of Fame.

The Symposium could not exist without Mr. Drapeau, whose desire to expand research opportunities for undergraduates has driven this enterprise and has shaped the lives of hundreds of Southern Miss students. We thank him for his commitment and generosity.

# ABOUT OUR KEYNOTE SPEAKER



**DR. ANDERSON** is an academic surgeon and surgical educator at the University of Mississippi Medical Center (UMMC). He has served as professor and chair of the Department of Surgery at UMMC since 2015. He currently holds the James D. Hardy Endowed Chair in Surgery, is medical director for the Transplant Service Line at UMMC, is the surgical director for the Mississippi Organ Recovery Agency (MORA), and serves as the vice-chair of the Council of Clinical Chairs at UMMC.

Dr. Anderson's clinical practice focuses solely on abdominal organ transplantation and hepatobiliary/pancreatic surgery. Dr. Anderson joined the faculty at UMMC in 2011 and led a University Transplant team that started the liver transplant, pediatric kidney transplant, and pancreas transplant programs at UMMC. This team has produced a number of "firsts" in Mississippi, including deceased donor adult-to-adult split liver transplantation; paired kidney exchange living donation; combined liver, pancreas, kidney transplantation; and most recently, normothermic regional perfusion for MORA organ donors. In addition to organ failure, he cares passionately about surgical cancer care. As chair of the Department of Surgery, he fostered the creation of the Division of Surgical Oncology, and his team has created Mississippi's only high-volume hepatobiliary and pancreatic surgery program.

Dr. Anderson's academic interests are in ischemic injury and graduate surgical education. As chair, he oversees the eight Accreditation Council for Graduate Medical Education-accredited surgical training programs maintained by the Department of Surgery. These programs provide graduate medical education to over 70 full-time residents and fellows in addition to supporting other non-UMMC residency programs in the state. He has been an invited speaker at regional, national and international conferences. He has served on the Board of Directors for the United Network for Organ Sharing, on the Board of Governors for the American College of Surgeons, and on two editorial boards and numerous committees for national surgical societies. He has authored more than 90 peer-reviewed articles and 15 book chapters.

After earning his bachelor's degree in chemistry (biochemistry emphasis) as an Honors Scholar at The University of Southern Mississippi, he earned his MD at Emory University. He completed his general surgery residency at Vanderbilt University and subsequently his abdominal transplant fellowship at Washington University in St. Louis in 2008. Before joining UMMC in 2011, Dr. Anderson was an assistant professor of surgery in the Department of Surgery at Washington University in St. Louis.

# ABOUT OUR HOSTS



## DRAPEAU CENTER FOR UNDERGRADUATE RESEARCH

### THE DRAPEAU CENTER FOR UNDERGRADUATE RESEARCH

(DCUR) was established in October 2011, assuming the name of its benefactor, Donald Drapeau, in 2016. The mission of the center is to enhance the undergraduate experience by promoting and supporting student-faculty collaborations in research, creative projects and scholarship. The benefits of active participation in faculty-mentored research are myriad both to the student experience and the university community at large.

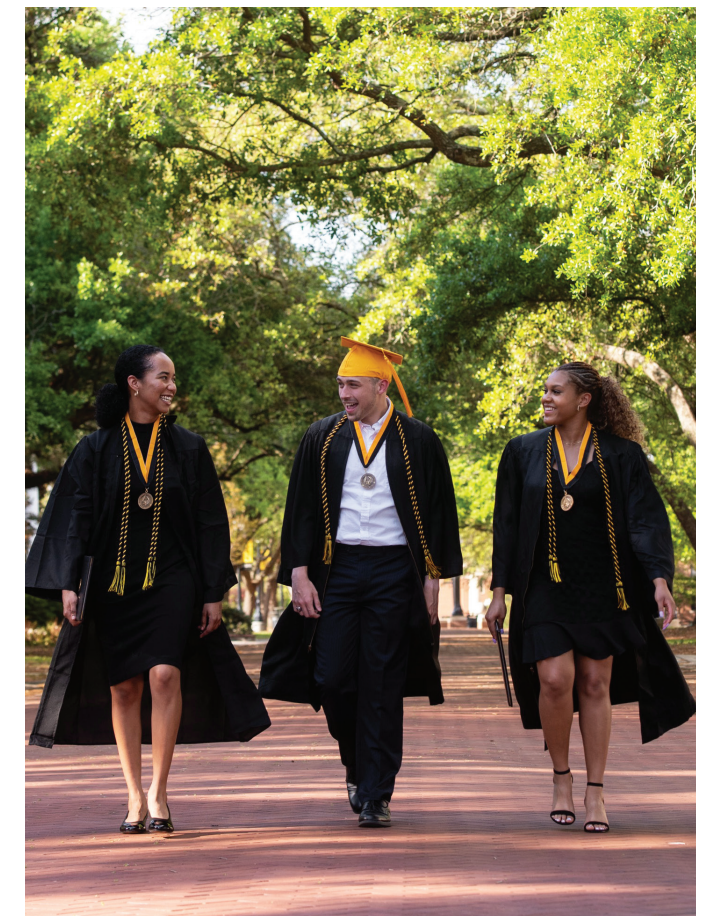


DCUR sponsors competitive programs to assist students in their independent scholarship activities. These include the Eagle Scholars Program for Undergraduate Research (Eagle SPUR), which provides funds to support travel, purchase equipment and supplies, and/or to be used as a stipend, and the Drapeau Summer Research Grants, which allow students to work full-time on their projects during the summer. You may learn more about these programs at [usm.edu/undergraduate-research/drapeau-center.php](https://usm.edu/undergraduate-research/drapeau-center.php).

## THE UNIVERSITY OF SOUTHERN MISSISSIPPI *HONORS COLLEGE*

The first honors college in Mississippi and one of the oldest in the nation, the Southern Miss Honors College was founded in 1976 in an effort to offer enhanced educational experiences for high-achieving students. From its founding, the Honors College has required every student to undertake original research in the form of an Honors thesis, making the college a fitting host for the Undergraduate Symposium.

Through a supportive and challenging intellectual community and by valuing engaged and active learning, the college encourages its students to seize opportunities and boldly determine their own paths—both at the university and beyond. Upon graduation, Honors Scholars have the independence and confidence to pursue their passions, the knowledge and tools with which to chart a fulfilling future course, and a lifelong commitment to using their capacities for the public good. For more information about the Honors College, visit [usm.edu/hc](https://usm.edu/hc) or contact us at [honors@usm.edu](mailto:honors@usm.edu).



# THANK YOU!

## THE 2026 SYMPOSIUM PLANNING COMMITTEE

This year's Symposium was organized and developed through the hard work of a university-wide committee, which met throughout the 2025-26 academic year to put this event together. These faculty and staff members gave of their time and energy so that students and faculty could enjoy a successful Symposium. Thanks to all of them for their service!

Dr. Laurie Benvenuti Sutphin, HONORS COLLEGE

Dr. Katja Biswas, SCHOOL OF MATHEMATICS AND NATURAL SCIENCES

Dr. Jennifer Brewington, SCHOOL OF HUMANITIES

Dr. Nicholas Ciraldo, SCHOOL OF MUSIC

Dr. Jeremy Deans, SCHOOL OF BIOLOGICAL, ENVIRONMENTAL AND EARTH SCIENCES

Dr. Sabine Heinhorst, DRAPEAU CENTER FOR UNDERGRADUATE RESEARCH

Ms. Jaide Hollingsworth, HONORS COLLEGE

Dr. Joyce Inman, HONORS COLLEGE

Prof. Brianna Jahn, SCHOOL OF PERFORMING AND VISUAL ARTS

Ms. Tegi Jenkins-Rimmer, OFFICE OF THE VICE PRESIDENT FOR RESEARCH

Prof. Nathan Mullins, SCHOOL OF PERFORMING AND VISUAL ARTS

Dr. Ramesh Rijal, SCHOOL OF BIOLOGICAL, ENVIRONMENTAL AND EARTH SCIENCES

Dr. Tyler Surber, SCHOOL OF PSYCHOLOGY

Dr. Elena Stepanova, SCHOOL OF PSYCHOLOGY

Dr. William Thompson, SCHOOL OF MEDIA AND COMMUNICATION

Dr. Joanne Tran, SCHOOL OF MARKETING

Dr. Rebecca Tuuri, HONORS COLLEGE

Dr. Alexandra Valint, SCHOOL OF HUMANITIES

Ms. Cyndi Wyles, OFFICE OF THE VICE PRESIDENT FOR RESEARCH

THE SYMPOSIUM TAKES A GREAT DEAL OF PLANNING AND SUPPORT, AND WE WANT TO THANK ALL OF THOSE WHO HAVE CONTRIBUTED TO THE EVENT!

## FACULTY JUDGES

We are grateful to the following Southern Miss faculty members for volunteering their time and energy to UGS.

Dr. Lin Agler, PSYCHOLOGY

Dr. Katja Biswas, PHYSICS

Dr. Eugin Bornman, OCEAN SCIENCE

Dr. Jennifer Brewington, ENGLISH

Dr. Heather Broadhead, POLYMER SCIENCE

Dr. Nikki Camlin, BIOLOGICAL SCIENCES

Dr. Gordon Cannon, BIOCHEMISTRY

Dr. Matthew Casey, HISTORY

Dr. Nicholas Ciraldo, MUSIC

Dr. Tristan Clemons, POLYMER SCIENCE

Dr. Jeremy Duckworth, COMPUTER SCIENCE

Prof. Michele Frasier-Robinson, LIBRARY AND INFORMATION SCIENCE

Dr. Hari Giri, POLYMER SCIENCE

Dr. Yanlin Guo, BIOLOGICAL SCIENCES

Dr. Melissa Gutierrez, BIOLOGICAL SCIENCES

Dr. Bridget Hayden, ANTHROPOLOGY

Dr. Xuyang He, FORENSIC SCIENCE

Dr. Sabine Heinhorst, BIOCHEMISTRY

Dr. Kathleen Hemeon, OCEAN SCIENCE

Dr. Shohreh Hemmati, CHEMICAL ENGINEERING

Dr. Karlie Herndon, ENGLISH

Dr. Andrew Huebert, PSYCHOLOGY

Dr. Mark Huff, PSYCHOLOGY

Dr. Luis Iglesias, ENGLISH

Dr. Joyce Inman, ENGLISH

Prof. Brianna Jahn, DANCE

Dr. Christy Kayser, PSYCHOLOGY

Dr. Erica Kennedy, FINANCE

Dr. Matthew Kennedy, BIOLOGICAL SCIENCES

Dr. Todd Kilbourne, COMPUTER ENGINEERING

Dr. Ashley Marshall, LIBRARY AND INFORMATION SCIENCE

Dr. Jose Martinez Cruz, COMPUTER SCIENCE

Dr. Katya Maslakowski, HISTORY

Dr. Michelle McLeese, SOCIOLOGY

Dr. Sarah Morgan, POLYMER SCIENCE

Prof. AJ Mull, COMPUTER SCIENCE

Dr. Derek Patton, POLYMER SCIENCE

Dr. Kayla Perri, MICROBIOLOGY

Prof. Nadine Phillips, LIBRARY AND INFORMATION SCIENCE

Dr. Julie Pigza, CHEMISTRY

Dr. Nick Rahimi, COMPUTER SCIENCE

Dr. Mahdi Razaz, OCEAN ENGINEERING

Dr. Ramesh Rijal, BIOLOGICAL SCIENCES

Dr. Bernd Schroeder, MATHEMATICS

Dr. Partha Sengupta, COMPUTER SCIENCE

Dr. Kaden Stevens, POLYMER SCIENCE

Prof. Alexis Stoner, MARKETING

Dr. Andrew Sung, COMPUTER SCIENCE

Dr. Tyler Surber, PSYCHOLOGY

Dr. Anna Swann, MEDICAL LABORATORY SCIENCES

Dr. Haiyan Tian, MATHEMATICS

Dr. Joanne Tran, MARKETING

Dr. Alana Turner, BIOMECHANICS

Dr. Rebecca Tuuri, HISTORY

Dr. Alexandra Valint, ENGLISH

Dr. Amanda Walsh, COMMUNICATION

Dr. Sharon Young, ANTHROPOLOGY

Prof. Tisha Zelner, LIBRARY AND INFORMATION SCIENCE

# THANK YOU

## OUR CAMPUS SPONSORS

We would like to extend a special thank you to the College of Business and Economic Development for opening the doors of Scianna Hall to the Symposium, and to these sponsors for their generous support.

- |   |   |
|---|---|
| Vice President for Research                                     | College of Nursing and Health Professions |
| Vice President for Student Affairs<br>and Enrollment Management | Graduate School                           |
| College of Arts and Sciences                                    | University Libraries                      |
| College of Business and Economic Development                    | Southern Miss Athletics                   |
| College of Education and Human Sciences                         | Barnes & Noble                            |

We'd like to extend a special thank you to these donors for their kind support of our student scholars.



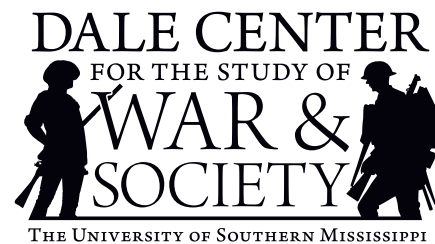
Best Community-Engaged  
Research or Creative Activity



The Women's and Gender Studies Prize



Best Presentation on a Biomedical Topic  
Loan of easels and boards



The Virginia Culpepper Award



Arts Showcase Awards

THE SYMPOSIUM TAKES A GREAT DEAL OF PLANNING AND SUPPORT, AND WE WANT TO THANK ALL THOSE WHO HAVE CONTRIBUTED TO THE EVENT!

## OUR COMMUNITY SPONSORS

Please help us thank our local sponsors by letting them know that Hattiesburg appreciates their support of student achievement at Southern Miss!



### SPECIAL THANKS

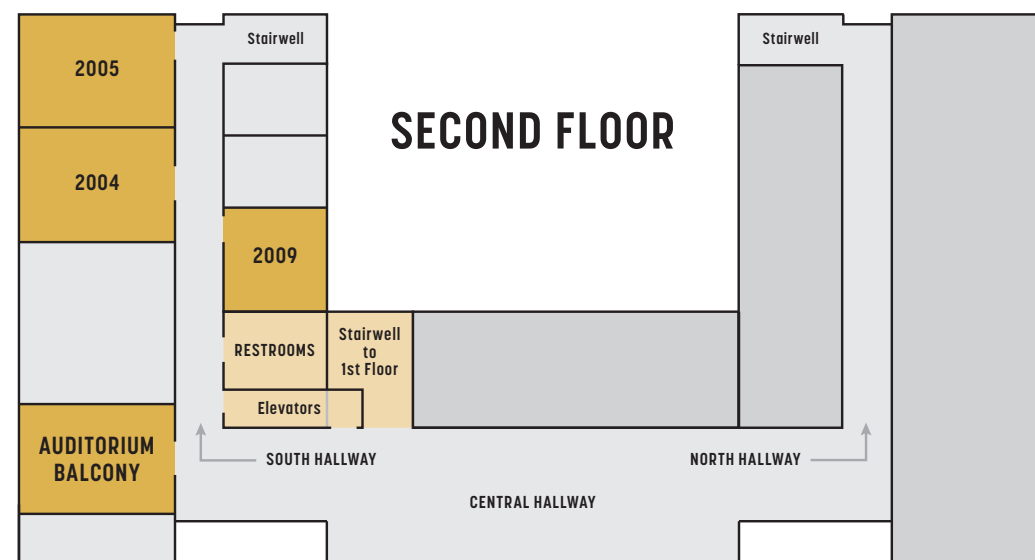
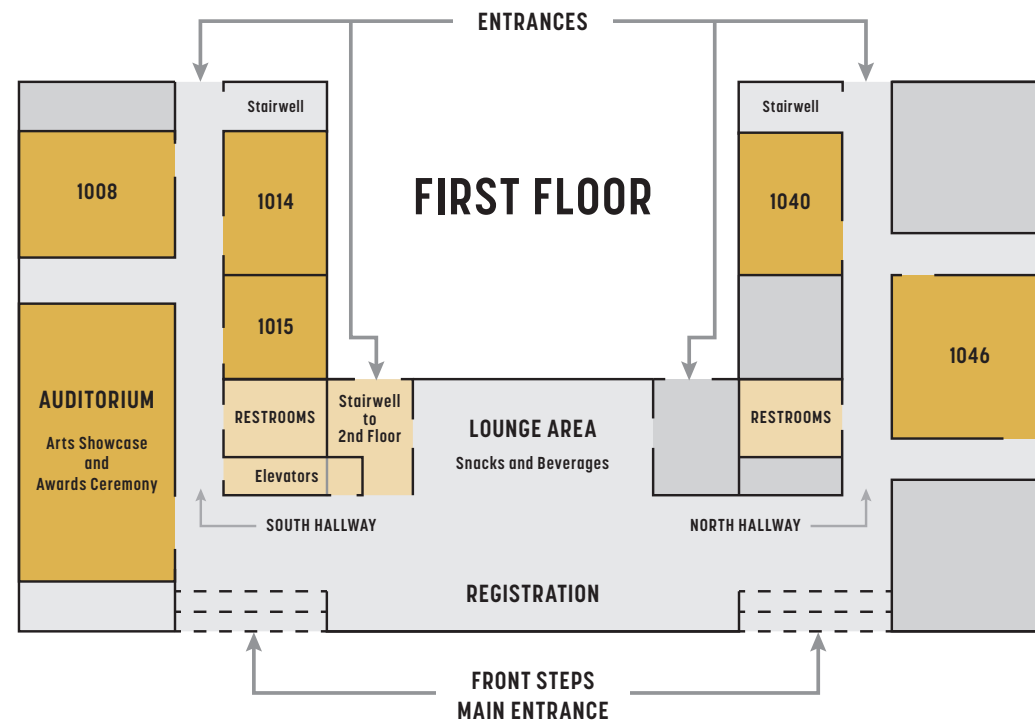
to American Graphics for their especially generous support!



# SCIANNA HALL

# SCHEDULE OF SESSIONS

SATURDAY, APRIL 18



## 8:30-9:40 A.M. ORAL PRESENTATION SESSION I

ALTERNATE MODERATOR FOR SESSION I: CLYDE RAIBLE, SCHOOL OF PSYCHOLOGY

### SCH 1008 GENDER AND NARRATIVE IN LITERATURE A

MODERATOR: BRITT PAGE, SCHOOL OF HUMANITIES

Bodies as Vessels: (Re)Production, Consumption and Female Identity in *The Handmaid's Tale* and *Dawn*  
SHELBY CLARK, ENGLISH

Christina Rossetti's Reimagination of the Eden Narrative in "Goblin Market": Jeanie as Eve  
BELLE CLEM, ENGLISH

Masculinity and Unspoken Trauma: Jonathan Harker's Methods of Coping  
JOSELLEN TURRENTINE, ENGLISH

The Subtle Horrors of Suburbia: The Gothic Presence of Historical Memory Within Mark Z. Danielewski's *House of Leaves*  
EMILY SMITH, HISTORY

### SCH 1014 MOLECULAR INTERACTIONS AND THEIR BIOLOGICAL EFFECTS B

MODERATOR: MARWAH WALID ALI ALZARA, SCHOOL OF BIOLOGICAL, ENVIRONMENTAL AND EARTH SCIENCES

Synergistic TNF- $\alpha$  and IFN- $\gamma$  Signaling Drives Distinct Transcriptional Programs in Mouse Embryonic Fibroblasts but Not in Trophoblasts  
FATIMA KARIM, BIOLOGICAL SCIENCES (BIOMEDICAL SCIENCES)

Studying the Role of Syntaxin 11 in Mast Cell Exocytosis/Degranulation of Tumor Necrosis Factor Alpha (TNF- $\alpha$ )  
TONEY RAY GIBSON JR., BIOLOGICAL SCIENCES (MICROBIOLOGY)

Growth Defect Caused by NIPP1-Mediated PP1 Inhibition May Result From Altered Translation and/or Ribosome Biogenesis in *Saccharomyces cerevisiae*  
NETA NNABUENYI, BIOLOGICAL SCIENCES (BIOMEDICAL SCIENCES)

### SCH 1015 TECHNOLOGY AND SOCIETY C

MODERATOR: JULIE REAMS, SCHOOL OF KINESIOLOGY AND NUTRITION

Growing Up Digital: Gen Z's Perceptions of Parental Oversight of Digital Media  
GRACE CURTIS, SOCIOLOGY

Small Towns, Big Networks: Digital Identity Navigation Among Rural College Students  
SUVI LAMA, SOCIOLOGY, COMPUTER SCIENCE

Digital Preservation Policies in University Libraries: A Content Analysis  
RAMSEY MCMANUS, HISTORY

**SCH 1040 RACE IN POLITICS AND HEALTH****D**

MODERATOR: JASON SIMPSON, SCHOOL OF KINESIOLOGY AND NUTRITION

Constructing the "Other": Race, Power and Persuasion in Contemporary Political Discourse  
TYRON RHODES, HISTORY (SOCIAL STUDIES EDUCATION)Birthing While Black: Confronting Mississippi's Maternal Health Crisis  
LILAH PITTMAN, NURSINGLived Experiences of Black Americans in the U.S. Healthcare System: A Qualitative Study of Trust, Discrimination and Access  
JAMES DARBY, BIOLOGICAL SCIENCES (BIOMEDICAL SCIENCES), SOCIOLOGY**SCH 2004 MATERIALS ENGINEERING AND SPECTROSCOPY****E**

MODERATOR: SK RAHAT BIN SALAM, SCHOOL OF MATHEMATICS AND NATURAL SCIENCES

The Design of a Product to Reduce Overpressure and Fragmentation Hazard in the Manufacturing and Storage of Primary Explosives  
LENA BLAKE, POLYMER SCIENCE AND ENGINEERINGHigh-Throughput Goniometer With Fully Automated Contact Angle Measurement of Polymer Solutions  
MASHRAFE ARYAN, COMPUTER ENGINEERINGAn Optical System for Characterizing the Spatial Extent and Pressure-Dependent Evolution of Radiation-Induced Fluorescence Volumes  
MAXIMILIAN ALBERTH, PHYSICSAlignment and Characterization of Cavity Ring Down Spectroscopy System With 650 nm Laser Diode  
EVA CHALONA, PHYSICS**SCH 2005 CYBERSECURITY****F**

MODERATOR: NAZMUL HOSEN, SCHOOL OF MATHEMATICS AND NATURAL SCIENCES

The UI Vulnerability: Design Influences Trust, Fatigue and Security Integrity  
AMMAR AHMED, COMPUTER SCIENCE  
AADARSHA KUNWAR, COMPUTER ENGINEERING  
COLTON CLEARY, COMPUTER SCIENCE  
CHIEMELIE UME, INFORMATION TECHNOLOGY  
SAMBHAV PYAKUREL, COMPUTER SCIENCESocial Engineering Attack Detection in Corporate Communications  
PAPPU JHA, COMPUTER SCIENCE  
HANZLA HAMID, COMPUTER SCIENCEBenchmarking Supervised Machine Learning Algorithms Using PyCaret for Binary and Multiclassification of Network Anomaly Attacks  
MANISH KATEL, COMPUTER SCIENCE  
KIRAN MALLA, COMPUTER SCIENCEDANTE.v2: A Scenario-Specific Breakdown of an LSTM-Based Approach to Predict Insider Threat on Daily System Logs  
ALABHYA PAHARI, COMPUTER SCIENCE, MATHEMATICS  
ARYAN ADHIKARI, POLYMER SCIENCE AND ENGINEERING**SCH 2009 ART AS PRACTICE****G**

MODERATOR: JOSEPH WRIGHT, SCHOOL OF PERFORMING AND VISUAL ARTS

If You Wish – A Poem on Refuge, Ruin and the Politics of Voice  
HASAN BUKHARI, COMPUTER SCIENCESouthern Miss: The Legacy of Resilience  
ASHLEY LEWIS, FORENSICS (CRIMINAL JUSTICE)Movement as Medicine  
ALLISON ROSE, DANCE (PERFORMANCE AND CHOREOGRAPHY)**9:50-11 A.M. ORAL PRESENTATION SESSION II**

ALTERNATE MODERATOR FOR SESSION II: GARIMA PURI, SCHOOL OF PSYCHOLOGY

**SCH 1008 HISTORICAL TOPICS****H**

MODERATOR: MELINDA SLAY, SCHOOL OF PSYCHOLOGY

Hard Times and Children: The Relationship Between Child Mortality and the Sentimentality of Children's Graves in Oaklawn Cemetery and Roseland Park Cemetery  
MADELYN CRAIG, ANTHROPOLOGYLibrarians Go to War: The Efforts of U.S. Librarians During World War II  
JOCELYN REVOLDT, HISTORYDollars Speak: An Economic History of the Mississippi Choctaw  
LOGAN SPRINGSTEAD, HISTORY"Silence = Death" The AIDS Epidemic in Queer Art History  
EL SMITH, STUDIO ART**SCH 1014 CHEMICAL SYNTHESIS AND CHARACTERIZATION****I**

MODERATOR: ALYSSA SHAW, SCHOOL OF POLYMER SCIENCE AND ENGINEERING

Synthesis, Photophysical and Electrochemical Studies of Oxime-Functionalized Coumarin-Quinoline Molecular Probes  
NISHRENIKA POKHREL, CHEMISTRY (ACS-CERTIFIED CHEMISTRY)Bicyclic Bio-Based Building Blocks for Epoxy-Amine Thermosets  
ALIYA PURYEAR, POLYMER SCIENCE AND ENGINEERINGAccelerated Discovery of Phase Behavior in Block Copolymer-Homopolymer Blends Via a Gaussian Process-Driven Closed-Loop Platform  
KAI ADHIKARI, POLYMER SCIENCE AND ENGINEERINGA Design of Experiments Approach to Sprayable Supramolecular and Covalent Hydrogels for Cell Delivery  
JESSICA SHRESTHA, POLYMER SCIENCE AND ENGINEERING**SCH 1015 EXPLORING TECHNICAL APPROACHES IN BIOLOGY****J**

MODERATOR: OLAOLUWA OYEDIRAN, SCHOOL OF BIOLOGICAL, ENVIRONMENTAL AND EARTH SCIENCES

Modifying Conventional Techniques in Bacteriophage Amplification for Higher Yield Recovery  
AIMEN ELAHI, POLYMER SCIENCE AND ENGINEERINGDevelopment of Antibody Electroporation in Mammalian Oocytes for Novel Reverse Genetic Approaches in Mouse Oocytes  
PAIGE WILSON, BIOLOGICAL SCIENCES (MICROBIOLOGY)Biophysical Characterization of Cysteine Mutants of TDP-43 Prion-Like Domain (PrLD)  
JASON ANG, CHEMISTRY (ACS-CERTIFIED CHEMISTRY), FORENSICS (BIOLOGICAL SCIENCES)**SCH 1040 IMPROVING COMPUTATIONAL TOOLS****K**

MODERATOR: MUSA RABIU, SCHOOL OF BIOLOGICAL, ENVIRONMENTAL AND EARTH SCIENCES

Filter-Then-Verify: A Multiphase GNN and ModernBERT Framework for Social Engineering Detection in Email Networks  
BARSAT KHADKA, COMPUTER ENGINEERING  
PRASANT KOIRALA, COMPUTER SCIENCE  
KSHITIZ NEUPANE, COMPUTER SCIENCE, MATHEMATICSEncrypted and Robust Federated Learning Under Constraints: A System-Level Tradeoff Analysis  
SANDESH BHATTARAI, COMPUTER SCIENCEAlgorithm Performance in the Search for Hamiltonian Cycles  
CHANCE DAVIS, COMPUTER SCIENCEQuantum Entanglement Dynamics of Bell States Under Noise  
NISHANT CHAUDHARI, PHYSICS, MATHEMATICS

## SCH 2004 VISUALIZATION AND IMAGE MANIPULATION

L

MODERATOR: MONA AHMED GUALED, SCHOOL OF POLYMER SCIENCE AND ENGINEERING

Adaptive Anchor Policies for Efficient 4D Gaussian Streaming

ASHIM DAHAL, COMPUTER SCIENCE

Redemption Score: A Multi-Modal Evaluation Framework for Image Captioning Via Distributional, Perceptual and Linguistic Signal Triangulation

ANKIT GHIMIRE, COMPUTER SCIENCE

AI-Assisted 3D Pre-Visualization: Streamlining Animatics for Filmmakers

NISHIT THAPA, COMPUTER SCIENCE

Distilling a Large Vision-Language Model Into a Compact Student for Evidence-Grounded Floor Plan Question Answering

KIRAN SILWAL, COMPUTER SCIENCE

## SCH 2005 MATHEMATICAL SOLUTIONS

M

MODERATOR: DANIEL STRUBLE, SCHOOL OF POLYMER SCIENCE AND ENGINEERING

Applying the SPBC Method to the Newtonian 5-Body Problem

NAYAN KARKI, PHYSICS, MATHEMATICS

NICON POKHAREL, PHYSICS, MATHEMATICS

A Five-Parameter Generalization of the Split-Normal Distribution

SWAYAM CHAULAGAIN, MATHEMATICS, COMPUTER SCIENCE

NFL Pre-Snap Deception: A Statistical Model for Play Prediction and Pass-Rush Value

VERITY NWABUISI, MATHEMATICS

A Drift-Diffusion Framework for Insider Threat Detection Using Continuous-Time Markov Chains

SURAMYA ANGDEMBAY, MATHEMATICS, COMPUTER SCIENCE

## SCH 2009 LAW AND PUBLIC OPINION

N

MODERATOR: AMELIA MOREHEAD, SCHOOL OF PSYCHOLOGY

U.S. Minority Adults' Perceptions of Policing

LANDEN MORAN, SOCIOLOGY

Public Opinion of and Faith in the U.S. Supreme Court

ALLEE GAY, LEGAL STUDIES (PRE-LAW), WORLD LANGUAGES (SPANISH)

The Weight of a Diagnosis: How PTSD and ASPD Diagnoses Influence Jury Decisions

ZOEE ROBINSON, PSYCHOLOGY

## 12:30-2 P.M. POSTER PRESENTATIONS

Browse student posters to learn from the latest cutting-edge social science and STEM research.

POSTER PRESENTATION MODERATORS: KACI DEAN, SCHOOL OF PSYCHOLOGY; BRYAN FRANKS, SCHOOL OF PSYCHOLOGY; DORI HARCHARIK, SCHOOL OF POLYMER SCIENCE AND ENGINEERING; A B M ASHIKUR RAHAMAN, SCHOOL OF MATHEMATICS AND NATURAL SCIENCES; DUTIMOYI JAHANGIR, SCHOOL OF POLYMER SCIENCE AND ENGINEERING

## SCH FIRST FLOOR, NORTH HALLWAY

1. Comparing Domain-Specific Lesion-Pasting and Domain-Agnostic Mix-Based Augmentation for Tomato Leaf Disease Detection  
TANJIMUZZAMAN TURAN, COMPUTER SCIENCE
2. Factors Influencing Physical Activity During School Hours for Private and Public Elementary Institutions  
LOGAN GRAVES, KINESIOLOGY (EXERCISE SCIENCE)

3. Mestizaje and the Persistence of Colonial Hierarchies in Mexico: From Intellectual Origins to Contemporary Implications  
DIEGO SOSA, PHILOSOPHY (PRE-LAW)
4. Development and Tuning of PID Controllers in One and Two Degrees of Freedom  
NOAH EVANS, OCEAN ENGINEERING
5. VR Perception: Investigating the Effects of Depth and Distance on Jumping Decisions  
EAN FISHER, PSYCHOLOGY
6. Development of a Computational Chemistry Laboratory to Teach the Diels-Alder Reaction Using WebMO  
AUTUMN WESTMORELAND, CHEMISTRY (ACS-CERTIFIED CHEMISTRY)
7. Surface Modification Strategies of Inert Polymer Substrates  
JACOB TATUM, POLYMER SCIENCE AND ENGINEERING  
NOAH LITTLETON, POLYMER SCIENCE AND ENGINEERING
8. How Much Dimensionality Reduction Is Too Much? An Empirical Study of Information Loss in Tabular Classification  
PRINCE SUBEDI, COMPUTER SCIENCE
9. Neighborhood Safety, Environmental Attitudes, and Subjective Well-Being in the United States  
IBTESHAM AHMED, PSYCHOLOGY
10. The Hidden Cost of the Normality Assumption: Portfolio Optimization Errors in U.S. Energy Stocks During Calm and Crisis Periods  
AZMIR SIDDIQUI, MATHEMATICS, ACCOUNTING
11. Redesigning Ocean Probe Launchers to Improve Reliability and Durability  
ZACHARY ASHBURN, OCEAN ENGINEERING
12. Latency-Conditioned Evaluation of EEG Signal Forecasting for Brain-Computer Interfaces: Do Neural Models Outperform Autoregressive Baselines Under Realistic Deployment Constraints?  
PRASTAB GHIMIRE, MATHEMATICS, COMPUTER SCIENCE

## SCH FIRST FLOOR, SOUTH HALLWAY

13. TinyML at the Edge: Power-Optimized Acoustic Monitoring With Ground-Truth Verification for Terrestrial Ecosystems  
DIKSHANT ARYAL, COMPUTER SCIENCE, MATHEMATICS  
SUJJAL CHAPAGAIN, COMPUTER SCIENCE, MATHEMATICS  
MM NISHAT, COMPUTER SCIENCE
14. Diastereoselective Addition of Masked Acyl Cyanides to Nitroalkenes Using Achiral Squaramide Organocatalysts  
DARRIEN CARTER, CHEMISTRY (BIOCHEMISTRY)
15. Developing a Quantitative Framework for Evaluating Exoplanet Habitability  
KASTUV GAIRE, PHYSICS
16. Career Decision-Making Uncertainty in College Students: A Foundation for Research in College Athletes  
GAGANA MOHAN KUMAR, PSYCHOLOGY
17. Processing Windows for Thermal Solvent Immersion Annealing Compatibilization of Low-Molecular Weight Polypropylene in High-Molecular Weight Matrix  
SMARIKA NEUPANE, POLYMER SCIENCE AND ENGINEERING
18. Icarus's Fall: Villainization in *Wicked*, *Star Wars* and *The Untamed*  
LAURA RENFROE, ENGLISH
19. Investigating the Cardiovascular and Autonomic Responses to Energy Drink Consumption: The Role of Energy and Calorie Content  
SOPHIA SCHMIDT, BIOLOGICAL SCIENCES (BIOMEDICAL SCIENCES)
20. Taxonomic Identification and Palaeoecological Description of Early Maastrichtian Mosasaurs From the Blue Springs Site (Coon Creek Member of the Ripley Formation)  
KEISHAWN SMITH, GEOGRAPHY
21. Expansion Annealing for Improving the Mechanical Properties of Samples Printed Via Material Extrusion Additive Manufacturing  
NIYATI TAMANG, POLYMER SCIENCE AND ENGINEERING

22. NIP1-Mediated PP1 Inhibition Has Uncovered a Novel, yet Still Undefined Role, for PP1 in *Saccharomyces cerevisiae*  
ADDISON SONNTAG, BIOLOGICAL SCIENCES
23. The Correlation of Trauma and Dark Triad Traits in Heterosexuals and Sexual Minorities  
CAYDEN CROSS, PSYCHOLOGY
24. Tunable Stimuli Responses in Pyridine-Containing Conjugated Polymers  
SANDIP GHIMIRE, POLYMER SCIENCE AND ENGINEERING

#### SCH SECOND FLOOR, NORTH HALLWAY

25. Relational Victimization, Trauma and Friend Support on Dropout Intentions  
MAKAILA BELK, PSYCHOLOGY
26. Polymers for the Blue Economy: Enabling Gene Delivery in Saltwater Aquaculture Through Molecular Design  
JILLIAN PORTER, POLYMER SCIENCE AND ENGINEERING
27. Do People With Parents in Different Parenting Quadrants Differ in Dark Triad Traits?  
LEAH PAULSEN, PSYCHOLOGY, SOCIOLOGY
28. Effects of “Zero Sugar” Energy Drinks on Microbial Proliferation in Relation to the Gastrointestinal Microbiome  
MADISON HINES, MEDICAL LABORATORY SCIENCE
29. Side Chain Engineering Strategies for Hydrophilic Pyrrolo[3,2-b]pyrrole Chromophores and Polymers  
CHARLOTTE SKUPIEN, POLYMER SCIENCE AND ENGINEERING
30. Spreading the Love: Can Tip of the Tongue States Make People Curious About Unrelated Information?  
LILLIE JOHNSON, PSYCHOLOGY  
HAYDEN FULTON, PSYCHOLOGY
31. Plasma-Assisted Surface Functionalization of Polymers for Enhanced Bacteriophage Immobilization  
LAWRENCE PEARSON, POLYMER SCIENCE AND ENGINEERING
32. Do Stingless Bees (*Tetragonisca angustula*) Use Visual Stimuli to Detect Ant Intruders (*Ectatomma ruidum*)?  
JUNO FULGHAM, BIOLOGICAL SCIENCES (CONSERVATION BIOLOGY)
33. Exploring Student Academic and Grief Functioning After Loss: Perceptions and Influence of Faculty Responses to Student Bereavement  
VIVIAN HALE, PSYCHOLOGY
34. Leveraging Controlled Radical Polymerization to Enhance Targeted Protein Degradation  
TRISTEN WARNER, POLYMER SCIENCE AND ENGINEERING
35. The 1 Tbps Frontier: Securing 6G Networks Against the Quantum Horizon  
YUGESH THAPA, COMPUTER SCIENCE (APPLIED COMPUTER SCIENCE)  
ADITYA SHARMA, COMPUTER SCIENCE
36. Identifying Novel Defensive Mycobacteriophage Xavia Genes 1–36 Against Purky and Xeno Bacteriophages  
TAYLOR STEWART, BIOLOGICAL SCIENCES (BIOMEDICAL SCIENCES)  
TAYLOR BARNES, BIOLOGICAL SCIENCES (BIOMEDICAL SCIENCES)  
JAY FOUNTAIN, BIOLOGICAL SCIENCES (BIOMEDICAL SCIENCES)  
ALEXIS SMITH, BIOLOGICAL SCIENCES (BIOMEDICAL SCIENCES)  
MUHAMMAD SHAMIR SIDDIQUI, BIOLOGICAL SCIENCES (BIOMEDICAL SCIENCES), MATHEMATICS  
LANDON MURIN, BIOLOGICAL SCIENCES (MICROBIOLOGY)  
RAMYA HUDNALL, BIOLOGICAL SCIENCES (MICROBIOLOGY)

#### SCH SECOND FLOOR, CENTRAL HALLWAY

37. Utilizing a Brief Experimental Analysis to Examine Therapeutic Interventions on Math Anxiety and Math Fact Fluency in School-Age Children  
ERIN SIMON, PSYCHOLOGY
38. The Synthesis and Testing of Halofuginone Derivatives for the Treatment of Tick-Borne Diseases  
ABIGAIL TAYLOR, CHEMISTRY (BIOCHEMISTRY)
39. Effects of Auditory ASMR on Attentional Control and Memory Performance  
SCARLETT SCOTT, PSYCHOLOGY

40. Transcriptional and Functional Characterization of Macrophage Responses to *Mycobacterium tuberculosis*  
ELLA KING, BIOLOGICAL SCIENCES (MICROBIOLOGY)
41. Integrating Sediment Dynamics Into Flood Risk Modelling in the Koshi River Basin  
MUKESH POUDEL, COMPUTER SCIENCE
42. Investigating the Application of a Phase Separating Peptide Delivery System for the Treatment of Parkinson’s Disease  
ASHE DAVIS, POLYMER SCIENCE AND ENGINEERING
43. Relationships Between Aging, Introspective Accuracy, and Confidence on Tasks of Social Cognition  
SUZANNA HADDOX, PSYCHOLOGY
44. Function of Thoracic Setae in Mosquito Larvae  
DYLAN VO, PSYCHOLOGY
45. Adsorption and Desorption Mechanisms of PFAS Mixtures in Confined Carbon Systems  
MENNA KHALIFA, POLYMER SCIENCE AND ENGINEERING
46. Spatial Distribution of Seagrasses and Seeds at the Louisiana Chandeleur Islands  
RACHELL PICA COLON, MARINE BIOLOGY
47. Correlation Between Daily Physical Activity and Performance on Standardized Statewide Assessments: Project P.A.C.E.  
MALCOLM COURSE, KINESIOLOGY (EXERCISE SCIENCE)
48. Tree Size and Species as Factors in Nest Site Choice of Trap-Jaw Ant *Odontomachus haematodus*  
CAROLINE MARLEY, BIOLOGICAL SCIENCES
49. Does School-Level Socioeconomic Status Impact In-School Physical Activity in Youth: Project P.A.C.E.?  
SAVANNAH MCMILLAN, KINESIOLOGY (EXERCISE SCIENCE)
50. Investigating the Role of Extracellular Polyphosphate in Antibiotic Tolerance in *Mycobacterium tuberculosis*  
AMARA LOVINGS, BIOLOGICAL SCIENCES (BIOMEDICAL SCIENCE)
51. Synthesizing Nucleobase-Mimicking Monomers for Nucleic Acid Delivering Polymers  
JOSIE CALLAHAN SANTO, POLYMER SCIENCE AND ENGINEERING
52. Spectroscopic Detection of BTMPS in Illicit Fentanyl Mixtures Using FT-IR With Chemometric Analysis  
MIA TULLI, FORENSICS (BIOLOGICAL SCIENCES)
53. The Influence of Accompanying Party on Objectively Measured Physical Activity: Project P.A.C.E.  
EZEQUIEL HERNANDEZ, KINESIOLOGY (EXERCISE SCIENCE)
54. Influence of Potential Prey on Movements of Cownose Rays Around Ship Island  
ALEXIS GENTRY, MARINE BIOLOGY

#### SCH SECOND FLOOR, SOUTH HALLWAY

55. Identifying Novel Defensive Mycobacteriophage Xavia Genes 37–71 Against Purky and Xeno Bacteriophages  
HANNA HILL, BIOLOGICAL SCIENCES (BIOMEDICAL SCIENCES)  
AKYRION BROWN, BIOLOGICAL SCIENCES  
FAITH BROWN, BIOLOGICAL SCIENCES (BIOMEDICAL SCIENCES)  
MADELINE ELLIS, BIOLOGICAL SCIENCES (BIOMEDICAL SCIENCES)  
JAYLA MANNING, BIOLOGICAL SCIENCES  
DARREN MCCAN, BIOLOGICAL SCIENCES  
ALYSON BROWNLEE, BIOLOGICAL SCIENCES (MICROBIOLOGY)  
AARON MORGAN, BIOLOGICAL SCIENCES (BIOMEDICAL SCIENCES)  
MORGAN CRUMP, BIOLOGICAL SCIENCES
56. Design of a Hemorrhage Control Device for Non-Tourniquetable Wounds  
EMILY KILGORE, POLYMER SCIENCE AND ENGINEERING
57. Near-Infrared Reflectance as a Function of Body Size in the Army Ant *Eciton burchelli parvispinum*  
JACOB BARNES, BIOLOGICAL SCIENCES
58. Optimizing AUV Perception for Competitive Underwater Robotics: Analyzing Performance and Simplicity of Machine Vision Hardware  
JOSEPH KING, OCEAN ENGINEERING

59. Investigating *Escherichia coli* Adhesion on Polymeric Surfaces Under Dynamic Flow Conditions  
GRACE CUEVAS, POLYMER SCIENCE AND ENGINEERING
60. Students' Emotion Regulation Difficulties and Their Association With Parental Overprotection and Care  
MIKE JONES, PSYCHOLOGY
61. Long-Term Trends in Water Quality in the Gulf of Mexico: Is There a Link to Coastal Wetland Change?  
EVAN WAGENBLAST, MARINE BIOLOGY
62. Design and Fabrication of an Optoelectronic Device Utilizing DHPP-Based Electrolytes  
ANDREW SELL, POLYMER SCIENCE AND ENGINEERING
63. Stability Analysis of an Offshore Floating Platform Using Computational Fluid Dynamics  
BRYCE HOGAN, OCEAN ENGINEERING
64. A Computational Quantum Chemical Study of Fluorinated Allopurinol  
MK RAYAN, COMPUTER ENGINEERING
65. The Virtual Hiding Place: Analyzing Anonymous Chatroom Behavior  
AIDEN RISHER, ANTHROPOLOGY  
MAXINE HYPATIA MEERA, PSYCHOLOGY, SOCIOLOGY

## 2:10-3:20 P.M. ORAL PRESENTATION SESSION III

ALTERNATE MODERATOR FOR SESSION III: VANESSA PHAN, SCHOOL OF POLYMER SCIENCE AND ENGINEERING

### SCH 1008 IDENTITY AND VALUES IN MARKETING

0

MODERATOR: SABRINA PARKER, SCHOOL OF MANAGEMENT

Brand Activism and Internal Dissonance: Examining the Impact of Organizational Stances on DEI  
MARCUS KIRKLAND, MARKETING

Evaluating MLS Marketing Strategies to Spanish Speakers in the U.S.  
LARISSA LEE, MARKETING

How Visual Identity Builds Authority, Value and Meaning in the Esports Industry  
DAVION COLE, ART

### SCH 1014 IMPROVING ACCESSIBILITY IN EDUCATION, HEALTHCARE AND THEATER

P

MODERATOR: HALLIE CULPEPPER, SCHOOL OF EDUCATION

Caregiver Challenges and Health Access for Individuals With Developmental Disabilities in Mississippi  
KIRSTEN CUNNINGHAM, NURSING

No Small Parts: Universal Design and Disability Inclusion in Modern Theatre  
ALEXANDRIA ROBERTSON, THEATRE

Birdsongs, Rivers and Rain: Should Instructors Play Natural Soundscapes in Classrooms Across the United States?  
EVIE FRENCH, ENGLISH (ENGLISH EDUCATION)

### SCH 1015 HUMAN PHYSIOLOGY AND BEHAVIOR

Q

MODERATOR: DUSTIN ACKLEY, SCHOOL OF PSYCHOLOGY

Watch Out, Infection! Age-Related Memory Differences for Contaminated and Non-Contaminated Objects  
ELIZE JACKSON, PSYCHOLOGY, BIOLOGICAL SCIENCES

Bugging Out: Parent Modeling and Student Attitudes Towards Insects  
ERIN KREISER, PSYCHOLOGY

Comparison of Lower-Extremity Coordination Patterns During Countermovement Jumps Between Dancers and Non-Dancers  
DANIE JOSEPH, KINESIOLOGY (EXERCISE SCIENCE)

### SCH 2004 ENVIRONMENTAL EFFECTS ON ANIMAL BIOLOGY

R

MODERATOR: ANUSHKA TENNAKON, SCHOOL OF BIOLOGICAL, ENVIRONMENTAL AND EARTH SCIENCES

Developing a Range Prediction for the Western Range Extent of the Imperiled Florida Harvester Ant (*Pogonomyrmex badius*) Using Species Distribution Modeling  
NOAH WILLIAMSON, BIOLOGICAL SCIENCES (CONSERVATION BIOLOGY), GEOGRAPHY

Investigating the Potential for Stratification and Associated Movement of Gulf Sturgeon in an Anthropogenically Modified Spawning Reach  
OLIVIA ST. GERMAIN, MARINE BIOLOGY

Investigating the Influence of Thermal and Nutritional Stress on Fiddler Crab (*Leptuca panacea*) Claw Strength  
DYLAN STOCKHAUSEN, MARINE BIOLOGY

### SCH 2005 ANALYZING, MODELING AND ENGINEERING ENVIRONMENTAL PROCESSES

S

MODERATOR: NICK KREIS, SCHOOL OF MATHEMATICS AND NATURAL SCIENCES

Powering the World of Tomorrow With the Technology of Yesterday: The "Water Ox" Scalable Hydro-Capture System  
BOBBY DAVIS, COMPUTER SCIENCE (APPLIED COMPUTER SCIENCE)

Assessing the Atmospheric and Oceanic Conditions Governing Rapid Intensification and Weakening of 2024 Atlantic Tropical Cyclones  
DEWAN SHAFI, PHYSICS, MATHEMATICS

Stability and Bifurcation Analysis of a Prey-Predator Model With Allee Effect and Cooperative Predation  
AADARSH YADAV, PHYSICS, MATHEMATICS

### SCH 2009 COMPUTATIONAL APPROACHES IN MEDICINE AND BUSINESS

T

MODERATOR: SARAH CROWSEY, SCHOOL OF POLYMER SCIENCE AND ENGINEERING

Automated Detection of Pneumonia From Chest X-Rays Using Various Convolutional Neural Networks  
SAJIM AHMED, COMPUTER SCIENCE

Advancing Financial Time Series Forecasting  
PRABIN BAJGAI, COMPUTER SCIENCE

Perceptions and the Gender Disparity in Healthcare  
SUSOM HAIT, COMPUTER SCIENCE

## 3:30-4:30 P.M. CREATIVE AND PERFORMING ARTS SHOWCASE

### SCIANNA HALL AUDITORIUM

Join us for a celebration of creative activity by undergraduates at Southern Miss.

#### Q&A and Recognition of Visual Artists

*Foliage Overflow*  
BY CORINNE CROY  
VISUAL ARTIST,  
ART (SCULPTURE)

*Build Bridges, Not Borders*  
BY ANNA-LEESE RAGAB  
PHOTOGRAPHER, MEDIA AND  
ENTERTAINMENT ARTS (VIDEO ARTS)

*Soul Serenade*  
BY LUIS WEGNER  
PHOTOGRAPHER,  
COMMUNICATION STUDIES

*Capturing Cuts*  
BY ELISHA WILLIAMS  
PHOTOGRAPHER AND EDITOR,  
DIGITAL JOURNALISM

*Shadows of Poe: A Poetry Collection*  
POET: LAURA RENFROE, ENGLISH

*...and the Beast Shall Creep...*  
PERFORMER/SOCIAL MEDIA MANAGER: EVA MATSON, MUSIC  
PERFORMER: CAMERON NIX, MUSIC  
COMPOSER: JONATHAN RUSSELL

*While I Breathe*  
AUTHOR: SHELBY CLARK, ENGLISH

*The Proposal (excerpt)*  
WRITER, DIRECTOR, PRODUCER, EDITOR, COMPOSER, ACTOR: SHRIJAL THAPA, THEATRE (ACTING)  
CO-DIRECTOR: MATTHEW JAMES RALPH  
CO-DIRECTOR OF PHOTOGRAPHY: NISHIT THAPA  
CO-EDITOR/COLORIST: ROCHAK BASNET  
SOUND DESIGN: NASON PARKMAN  
PRODUCTION ASSISTANTS: WESLEY CARMICAL, NISHAN POUDEL  
ACTORS: DONNY ELKINS, ANNA FANNING, MARY-CATHERINE JONES, SHRIJAL THAPA

*Bassoon Set: A Composition for Unaccompanied Bassoon by African American Composer Adolphus Hailstork*  
BASSOONIST: ZACHARY HOWELL, MUSIC (PERFORMANCE-WIND INSTRUMENT)

*Cottonmouth*  
AUTHOR: LEE JOHNSON, ENGLISH (ENGLISH EDUCATION)

*Beyond Borders*  
CREATOR, EXECUTIVE PRODUCER, DIRECTOR: ROCHAK BASNET, MEDIA AND ENTERTAINMENT ARTS (VIDEO ARTS)  
CO-PRODUCER AND HOST: VIVEK PAUDEL

*Three Poems: Great Love Stories, To the Future and Rendezvous at the Detention Center*  
POET AND PERFORMER: HASAN BUKHARI, COMPUTER SCIENCE

*Curious Escape*  
PERFORMER AND CHOREOGRAPHER: GRAYSON BLAYLOCK, DANCE  
MUSIC: *CLAIR DE LUNE* COMPOSED BY CLAUDE DEBUSSY

## 4:45 P.M. AWARDS CEREMONY

### SCIANNA HALL AUDITORIUM

Please join us for the Awards Ceremony as we recognize all our competitors for their hard work and dedication to research and creative activity and award prizes to the top presentations of the Symposium.

# uqrs

2026

Hosted by the  
*Drapeau Center for Undergraduate Research*  
and the *Honors College*  
at The University of Southern Mississippi