SPECIAL AREA COMPETITIONS

The main objective of the Undergraduate Research Symposium (URS) is to allow students to showcase and share their research. In addition, students have the option to participate in Special Area Competitions hosted by various departments and organizations across campus. Judging for Special Area Competitions will take place during the main symposium event and winning projects will be awarded, except for the 3Minute Research Pitch.

Special Area Competitions for the Spring 2025 URS are detailed below. Eligibility for participation in each Special Area Competition is based on the subject matter of your project.

Note: Some Special Area Competitions require that students provide details about the relevance of their research to its theme, when completing the abstract submission form, to be considered for inclusion.

Students may be contacted by Special Area Competitions hosts regarding rules and procedures for participation after the abstract submission deadline.

SPRING 2025 URS SPECIAL AREA COMPETITIONS

a. 3Minute Research Pitch

The 3Minute Research Pitch is a competition that challenges undergraduate students to present a compelling verbal presentation of their research topic and its significance in just three minutes. Modeled after the Three Minutes Thesis (3MT) graduate competition, the goal of this program is to practice academic, presentation, and research communication skills and support the development of undergraduate students' capacity to describe their research in language appropriate to a public audience. Students compete by presenting their research topic in three minutes or less with only one slide. Competitions are judged by a panel comprised of a diverse group of professionals (academic and non-academic) with a wide range of expertise. This competition will take place separately from the main event (see schedule). Since there are limited spots available, students will be notified of their acceptance to this competition via email from The Graduate School.

To enter this Special Area Competition, please respond to the supplemental question on the abstract submission form.

b. Bagley College of Engineering Undergraduate Research Award

Projects completed under the supervision of a faculty member in the Bagley College of Engineering are eligible to receive a Bagley College Engineering Undergraduate Research Award. To be eligible for any award, at least one member

of the research team must be enrolled in a major offered in the Bagley College of Engineering. Monetary awards will be made in two categories:

Cross-Disciplinary Research

The solution to many future problems will require the application of knowledge and skills from multiple disciplines. To encourage work between disciplines, projects will be evaluated on the following criteria:

- Students from multiple disciplines were involved in the research. Multiple disciplines mean at least 2 different engineering majors or at least one engineering major and another non-engineering major. The strongest competitors will cross college boundaries in the composition of the research team.
- The research shows promise with wide-ranging benefits to society.
- The research has clear potential to impact the economic development of the state and region.

Visual Display of Information

An important skill for any researcher is the ability to communicate their research quickly and efficiently to a broad audience, including those who may not have a high degree of science and engineering education. The strongest competitors in this category will:

- Have an attractive display as demonstrated by the efficient use of text, figures, and photographs.
- Quickly communicate the intent and results of the research.
- Clearly state the significance of the research to society and identify those segments of society that will benefit most.
- This information should be clearly visible to the judges and others and be able to be communicated without having to interact with the researcher.

To enter this Special Area Competition, please respond to the supplemental questions on the abstract submission form

c. Biomedical Research Competition

This competition is for students in the life sciences and/or engineering who have conducted research related to preventing, diagnosing, or treating a human medical condition (i.e. illness, injury, or disease). The project should have clear biomedical relevance, and winners are able to discuss the project's proper medical context, the project's purpose or goal, applicable laboratory and engineering

techniques used to approach the problem, the project's results and their significance, conclusions that are supported by experimental data, the scope of the project, and time involved.

To enter this Special Area Competition, please respond to the supplemental question on the abstract submission form.

d. CALS/MAFES Undergraduate Research Scholars Program (URSP)

The Mississippi Agricultural and Forestry Experiment Station along with the College of Agriculture and Life Sciences will host an awards program for all students in the 2023-2024 CALS/MAFES Undergraduate Research Scholars Program. The award program will be judged by faculty from across the College and Experiment Station. Honor and Merit awards will be given to students who show excellence in research through the Program.

e. Climate Change and Society Research

The Climate Change and Society competition recognizes outstanding undergraduate research that addresses climate change and its societal impacts. Eligible projects include, but are not limited to, those supported by the NSF EPSCoR Program. Submissions may focus on research, education, or outreach initiatives that enhance understanding of climate impacts and adaptive resilience. Selection criteria include relevance to pressing climate related challenges, depth of scientific inquiry, potential for meaningful societal impact, and clarity and creativity in presentation.

f. College of Arts and Sciences Institute for the Humanities Award

The humanities competition recognizes outstanding student work that highlights the insights and values of humanities scholarship. Projects may summarize work with a community partner on a humanities project (e.g., a public history exhibit for a local organization) or translate humanities scholarship conducted in class for a layperson audience. Any student may use humanities research conducted in class or under the supervision of a faculty mentor, provided their poster aims to present the research in a publicly accessible way and explain its relevance to a public audience. The posters will be judged by humanities faculty associated with the MSU Institute for the Humanities and the top submission will receive an award.

g. College of Forest Resources and the Forest & Wildlife Research Center Award

Undergraduate research projects completed under the supervision of or in association with a faculty member in the College of Forest Resources are eligible

to be recognized with a College of Forest Resources/Forest and Wildlife Research Center Undergraduate Research Award. Eligible projects include but are not limited to, those supported by the CFR/FWRC Undergraduate Research Scholars Program. Selection criteria include novelty and originality, relevance, scientific merit, impact, and presentation.

h. Data Science Program Special Area Competition

The MSU Data Science Program Undergraduate Research Symposium Special Area Competition recognizes excellence in undergraduate research relevant to data science. The field of data science focuses on the advancement of methods and techniques to 1) represent the world with virtual data objects through a process of datafication; 2) extract insights and facilitate new discoveries about the world by studying these data objects; 3) create smart systems to perform tasks that have ordinarily required human intelligence; and 4) increase the scale, scope, and speed of the production and delivery of virtual and tangible goods and services. The data science Special Area Competition will recognize projects, **from any academic discipline,** that excel in one of three categories: basic research that deepens human knowledge of the underlying methods or techniques central to the field of data science, use-inspired research that advances the field of data science based upon a clear potential use case, and applied research that addresses a welldefined problem by applying data science methods and principles. The panel of judges will consist of faculty members who will categorize and score projects based upon an evaluation rubric designed by the faculty of the University Data Science Committee. Up to four awards will be given:

- Outstanding Basic Data Science Research Project
- Outstanding Use-Inspired Data Science Research Project
- Outstanding Applied Data Science Research Project
- Data Science Innovation Award, recognizing the best overall project chose from among the category awardees.

Honorable mentions may be given for meritorious projects that do not receive one of the overall or category awards. All student data science projects eligible for judging will be listed, with permission, on the MSU Data Science Program student research page, and awardees will be highlighted.

i. Engineer Research and Development Center (ERDC) Special Area Competition

The US Army Corps of Engineers Engineer Research and Development Center (ERDC) Special Area Competition recognizes excellence in undergraduate research relevant to the environmental and engineering challenges that face the Corps of Engineers, the Army, and the Nation. ERDC conducts cutting-edge

research and delivers innovative engineering solutions to secure our Nation, energize the economy, and reduce disaster risks. The primary focus of this Special Area Competition is ERDC's development of autonomous robotic systems for infrastructure inspection, with an emphasis on operation in unstructured environments and navigation in GPS-degraded conditions. This work integrates advancements in sensor fusion, autonomy stack development, high-fidelity simulations for edge case experimentation, and edge computing. Students from any discipline are encouraged to submit work showcasing innovative research in related areas that contributes to the advancement of autonomous systems and their real-world applications. The panel of judges will consist of ERDC employees who will categorize and score projects based on an evaluation rubric developed by ERDC.

j. Gulf Coast Research Award

The Gulf Coast Research award highlights projects that address issues facing the Gulf Coast, such as (but not limited to) community health and resilience, environmental protection and stewardship, and energy safety and sustainability. These issues are inextricably linked to one another; therefore, finding viable solutions to promote meaningful change inherently requires an interdisciplinary research approach. As a result, submissions from any discipline will be considered as long as they address a challenge that exists along the Gulf Coast or the larger Gulf of Mexico region, while submissions with a defined interdisciplinary framework in project design and/or implementation will be given special consideration.

k. Humanities in the World Special Area Competition

This competition invites undergraduate humanities students to share their own research that shows how the humanities can help us better understand important global issues. Eligible projects should look at complex topics like environmental crises; inequality based on race, gender, or disability; war and conflict; fair access to education; or other similar issues. Projects can be research papers, digital projects, or creative works that analyze or interpret parts of human culture, history, language, literature, philosophy, art, or related areas. Entries will be judged by a faculty panel based on originality, critical thinking, and the quality of presentation. Awards will be made for the best overall paper or project and up to two runners up.

l. MSU Libraries Research Award

The MSU Libraries Research Award is designed to recognize undergraduate student research that incorporated the use of library resources and/or services. To be considered for this award, indicate your interest on the registration form and

include a brief (150-250 word) statement regarding your use of library resources and services in your research project. The award is open to undergraduate researchers in any field. Projects are judged on the use of library resources and services, the originality of the work, and presentation clarity.

To enter this Special Area Competition, please respond to the supplemental question on the abstract submission form.

m. Public Health Research Competition

In celebration of National Public Health Week, the Public Health Research Competition component of the Undergraduate Research Symposium is designed to highlight the important work that undergraduate students at MSU are doing in public health. Public health research can be any research related to promoting and protecting the health of people and communities. Projects are evaluated on the overall quality and clarity of the abstract and implications statement, the relevance of the research to public health and the significance of the contribution to public health. To be considered for entry into the Public Health Research Competition as part of the symposium, indicate your interest on the registration form and include a brief (100- to 150-word) statement regarding the implications of your research for public health.

To enter this Special Area Competition, please respond to the supplemental question on the abstract submission form.

n. Psychological Science

Projects completed by a psychology major or under the supervision of a faculty member in the Department of Psychology are eligible to receive a Psychological Science Undergraduate Research Award. Selection criteria include significance, innovation, approach, and presentation. First and second places will receive a cash prize.

STUDENT-LED SPECIAL AREA COMPETITIONS

o. Tomorrow Builder Award

Theta Tau Professional Engineering Fraternity is a co-ed student organization that promotes service, professional development, and brotherhood. Our members are a diverse group from every major in the Bagley College of Engineering, and we strive to become the engineering leaders of the future. We are excited to support an individual in this year's research symposium to receive the Tomorrow Builder

Award, which aims to recognize an engineering undergraduate student who uses their skills and research to help solve complex problems of critical importance to society. Sponsored by Theta Tau Professional Engineering Fraternity.