Undergraduate Research at MSU

What should I research?

Consider classes, concepts, and questions that you find interesting. Investigate what professors work within your area(s) of interest, and learn more about their research and creative activity.

What kind of research happens at MSU?

Professors in every degree-granting college conduct research here at MSU. From benchtop to stagewing, from engineering to studio art, there are faculty who are doing cutting edge work in their field. Broadly, research is how academia talks to the rest of the world by sharing ideas and contributing solutions to contemporary issues. Therefore, it is not limited to a lab.

Arts and humanities research may take these forms:

- **Creative activities:** production and performance of art
- **Ethics:** analysis of moral issues and decision-making
- **Identity, culture, and conflict:** how individuals define their identity along with their humanity, spirituality, the natural world around them, and the social groups they belong to
- **Interpretation of human textual, visual, and material creativity:** exploring how humans make meaning with texts, visuals, and materials
- **Language:** analyzing the structure, evolution, and use of language
- **Literacy and learning:** considering what it means to be “literature” in language, culture, and the arts

Natural science research may take these forms:
https://faculty.math.illinois.edu/~kpratt4/what_is_math_research.pdf

- Laboratory
- Clinical
- Social descriptive

Social science research may take these forms:

- **Survey**: collecting data from subjects who answer questions about behaviors and opinions
- **Experiment**: using the scientific method to test a hypothesis either in a lab setting, where the setting is controlled, or in the field, where the setting is not controlled
- **Field research**: collecting data from the natural environment without conducting an experiment or survey by interacting with or observing people in a specific setting

- **Ethnography**: observation of the social perspective and cultural values of a social setting by becoming immersed in the life of a group, such as by living and working among them
- **Case study**: an in-depth analysis of a single event, situation, or individual
- **Secondary data analysis**: revisiting the work of other scholars, such as journals, books, newspapers, and multimedia, in order to interpret the findings in a new way that was not part of the original authors' purpose

One good place to start is MSU Scholars. This website is like Google Scholar in that it connects query searches to faculty members and their research interests, but it is specific to MSU researchers. See what unique research is happening at the university, what faculty members are publishing about, what active grants they have, who they collaborate with, and more.

Where does research happen at MSU?

Research happens all around campus, and not just for STEM students. Research and creative activity takes place in every degree granting college at MSU, including work in the fine arts, humanities, and social sciences.

Some research happens in unique places designated for investigative work on and off campus. Here are some that are unique to MSU (and the university is really proud of):

Interdisciplinary Science and Technology Building (ISTB)
Facility for Rare Isotope Beams (FRIB)
Kellogg Biological Station (KBS)
Plant Science Greenhouses

Some research happens inside of academic buildings. For example, you might not realize that the Biomedical and Physical Sciences (BPS) building, which houses your physics lab, is also home to microbiology, physiology, and physics labs. While that research takes place in upstairs wet-labs, research also takes place in the downstairs offices of the Psychology building.

Not all research takes place in a specific location. Some are only limited to where you can type and think, such as work done in the Department of English and Department of Political Science. Other creative activity may require more technology, such as the multimedia work done in the College of Communication Arts and Sciences, but it can still be done from the comfort of your laptop or desktop.

How do I email a potential research mentor?

This can be nerve-racking to do, but it is a necessary step for finding a fulfilling research experience. While it is not advised to send generic emails, here is a template that may serve as a starting point for you:

Hello Dr. Beaumont,

I recently learned about your research on ___. I am thinking about [this aspect of research] because ___. Based on your expertise in ___, I would like to talk about ___. I would be very interested in meeting with you. What is the best way to schedule a meeting with you? Please advise. I look forward to speaking with you soon.

Regards,
Suzie Spartan

Notice that this initial interest email is not long and does not express the student's needs (such as their "need" of research for applying to graduate/professional school). Check the faculty member's website and gather information about their research or creative activity. This may include reading their publications, watching their multimedia presentations, or attending their presentation at a seminar. Make sure that you show interest in their work in your email. Ultimately, you should strive to create a relationship with the faculty member before you ask them the favor of serving as your research mentor.

What are common experiences that undergraduates have in research?

Students have very different experiences as undergraduate researchers. Some work directly with a professor, some work under the guidance of a post-doc or graduate student, and others work rather independently. Some research mentors like to have their research mentees under close guidance, and others prefer to take a more laissez-faire approach. Students may work on a small part of a big project, help a faculty member with the design process of a study, or work with their research mentor to develop their own project. Many students end up working 10-15 hours per week on their project. This time may or may not include additional lab meetings. Some projects require special time commitments. For example, if you are working with a living organism, you may be required to work over weekends and over holiday breaks.

Many undergraduate researchers at MSU present at research symposiums such as UURAF, which hosts approximately 850 presenters every spring in the MSU Union, or Mid-SURE, which hosts approximately 200 presenters every summer in the Huntington Club (4th floor of Spartan Stadium).

Some students participate in summer research opportunities that focus on skills and development. Examples include a Summer Research Opportunity Program (SROP) and the BRUSH program sponsored by the College of Veterinary Medicine.

Most importantly, students have fun with their research and creative activity! See the work that other students have presented or published as undergraduate researchers:

UURAF

Mid-SURE
Red Cedar Undergraduate Research Journal (ReCUR)

What will I get out of an undergraduate research experience?

Students are able to gain valuable volunteer experience, paid experience, or even college credit for their research experience. Their research can be documented and shared with employers and graduate schools through an Undergraduate Research Experience on My Spartan Story, through a poster or oral presentation at a conference, or even through a publication. Additionally, undergraduate research allows students to gain hard and soft skills, be mentored by people at all stages of their academic and professional careers, and enjoy deeply learning about something they are interested in.

Do you have to be in the Honors College to conduct research?

No. While some research opportunities are reserved for the honors college, such as those through the Professorial Assistantship program, any undergraduate is allowed to and capable of conducting research and creative activity. If you are in the Honors College, you may be required to complete a creative activity such as a thesis or capstone for your major. Additionally, you may be eligible to apply for research-related scholarships, funding, learning abroad opportunities, and more.

Is research happening during the COVID-19 pandemic?

As of Spring 2021, in-person opportunities must be approved by the university. Faculty are responsible for submitting requests for undergraduates to participate in research experiences in person. On-campus and virtual creative experiences are also available. These experiences do not require faculty to submit a request. While the experiences may not be what you might expect them to be, they are still rich and fulfilling. Examples of virtual research and creative experiences include: literature reviews, online surveys and research, independent research, and data analysis.

Who can I contact to learn more about undergraduate research?

The Undergraduate Research and Creative Activity (URCA) office specializes in providing resources to students who are looking for creative activities and supporting those in current positions in order to help them achieve their goals. The office hires undergraduates who have sundry research experiences to help their peers be successful in their creative activities. These students offer peer advising hours that you can sign up for. Find the office on Facebook (/urmsu), Instagram (@ur_at_msu), and Twitter (@ur_at_msu) to stay up-to-date on research-related events and the amazing creativity that is found here at MSU.

Mentoring grid

A mentoring relationship is a two-way street: both the mentor and the mentee should have goals and expectations for one another. This table is arranged in chronological order from first contacting a research mentor to finishing a research project. Consider using this resource as a guide to ensure that your relationship with your mentor is healthy, open, and successful.

x	**Mentor**	x	**Mentee**
	Call or email your mentee to start up a conversation and set up a first meeting. Consider sending material about the project.		Respond to your mentor's request to meet. Consider sending a copy of your resume.
	Share information about your project - why are you interested in it, how you got started on it, and what you want to accomplish.		Share information about why you're interested in the project, what skills you bring to the project, and your goals for participating in the project.
Help to clarify shared goals and to establish a work plan and procedures. Identify deliverables - the products of the work that will be produced, and when they will be produced.			
	Set up a schedule for regular meetings and feedback suggestions. Agree on frequency, times, and venue, and stick to that calendar.		Set goals for each meeting; come to each meeting prepared, ready to report on your work, and to ask questions about the process.
	Plan to attend some events and meetings together.		Be willing to try new activities and to network with others who are also part of the research initiative.
	Work on oral and written communication skills, and take the mentee seriously as they adapt new skills.		Be receptive to feedback and coaching, both of which are opportunities for growth.
	Allow time for conversations that might extend beyond the research project and process.		Pay attention to changes in your life or your schedule that might require you to update your goals and extended outcomes; make these changes apparent to your mentor.
	Establish an approach for closing the relationship (e.g., a final meeting, attending an event together, sharing materials, talking about next steps).		Plan at the close of the research project to gather materials you want to take from the project - materials you authored, co-authored, designed and/or produced. Consider asking your mentor for a job reference or recommender.

REU Support	https://www.nsf.gov/crssprgm/reu/reu_search.jsp
Summer Research Support	https://www.pathwaystoscience.org/undergrads.aspx
Michigan state research opportunity	https://urca.msu.edu/summer
Summer research Look up	https://www.aamc.org/professional-development/affinity-groups/great/summer-undergrad-research-programs

Information on summer opportunity

Pre-Advising Question: Please consider these ahead of your first advising session.

1) What field(s) interest me and why?
2) Who are potential research mentors?
3) What do I hope to get and ultimately share from a research experience?

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