

RESEARCH METHODOLOGIES AND POTENTIAL COVID CONSIDERATIONS

Research is conducted in a variety of methods across different fields. This resource offers a basic overview of different approaches to research and how they might be impacted by current COVID19 safety procedures. First and foremost, all proposals must focus on your answerable research question, but this resource can help you see how you might seek to answer this question. As always, we encourage you to meet with an [OUR advisor](#) in addition to your faculty sponsor when applying for URG funding.

ARCHIVAL: The proposed project involves collecting primary sources held in archives, a Special Collections library, or other repository. Archival sources might include manuscripts, documents, records, objects, sound and audiovisual materials, etc. If a student proposes a trip to collect such sources, the student should address a clear plan of what will be collected from which archives, and should address availability and access (ie these sources are not available online, and the student has permission to access the archive). *COVID19 considerations: For this kind of work, the committee will look to see proof that the archive is open or has a plan to provide you the materials during COVID19 restrictions. While travel is not encouraged, if an archive is near the town you reside, it may be possible. For an AYURG, funding might be used to pay for Librarians to provide and copy resources for you. A student should still have a clear plan for what they plan to collect from a given archive. Additionally, many materials are available online that the student might consider prioritizing as a basis for their data collection.*

COMPUTATIONAL/MATHEMATICAL MODELING: The proposed project involves developing models to numerically study the behavior of system(s), often through computer simulation. Students should specify what modeling tool they will be using (i.e., an off-the-shelf product, a lab-specific codebase), what experience they have with it, and what resources they have when they get stuck with the tool (especially if the advisor is not a modeler). Models often involve iterations of improvements, so much like a Design/Build project, the proposal should clearly define parameters for a "successful" model with indication of how the student will assess if the model meets these minimum qualifications. *COVID19 considerations: If possible in your field, computational modeling or running simulations are good alternatives to some in-person studies. Be clear about what sorts of controls and variables are used within your proposed model, and what you might be changing within the model between iterations.*

CREATIVE OUTPUT: The proposed project has a creative output such playwriting, play production, documentary, music composition, poetry, creative writing, or other art. Just like all other proposals, the project centers on an answerable question, and the student must show the question and method associated with the research and generation of that project. The artist also must justify their work and make an argument for why this art is needed and/or how it will add to important conversations. *COVID19 considerations: If you seek to produce a creative output that involves people (ie theater performance, documentary, etc), you must demonstrate how you will achieve this in adherence to current campus policy for COVID19 safety requirements.*

DESIGN/BUILD - The proposed project's output centers around a final product or tool. The student clearly defines parameters for a "successful" project with indication of

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how they will assess if the product meets these minimum qualifications. *COVID19 considerations: If part of your design process involves user feedback, please demonstrate how you will acquire this data remotely. If your proposed project requires access to equipment at NU for fabrication, you must demonstrate department approval and your adherence to University safety guidelines.*

FIELDWORK: The project involves collection of data outside of a library, laboratory, or traditional academic research setting. The approaches and methods used in field research vary across disciplines. *COVID19 considerations: Some fieldwork, like geological or botanical data collection, is more conducive to social distance requirements. Other fieldwork, like human subject observation, is not. In these scenarios, consider options where you might be able to observe over video conferences (either existing or initiated by the student), online behaviors such as social media platforms, or see if there are video recordings of the setting you hope to use for observation.*

INTERVIEWS: The proposed project will collect data or narratives through interview(s). The proposal should clearly define who will be interviewed, how these participants will be recruited, and/or proof of support from contacts. The proposal should include interview questions in an appendix, which allows the review committee to assess whether the questions being asked will ultimately allow the student to answer the research question. The proposal should articulate how the results from these interview(s) will be analyzed or interpreted. *COVID19 considerations: Please be clear about whether the interviews will be conducted over phone or video conference.*

LAB-BASED: The project takes place in a lab or research group environment. The project often fits within the larger goals/or project of the research group, but the proposal still has a clearly identified research question that the student is working independently to answer.

COVID19 considerations:

*1) **All lab-based research must be in alignment with current university policy.** As announced 9/10/20 by Milan Mrksich, Vice President for Research at Northwestern, "first- and second-year undergraduates will not be allowed on campus for in-person learning during the Fall Quarter, and this policy extends to not allowing these students in the laboratories for the fall term. Only third- and fourth-year students with previous experience in the lab setting will be allowed in those research spaces." This addition is a clarification to the previous policy (7/2/20) wherein "undergraduate students who are significant contributors to the research programs can return to our laboratories. We expect that undergraduates who return are integral to their research team and are familiar with the research space and activities therein. Those who are new to the team or interesting in "shadowing" are not permitted on campus at this time. Undergraduates must also complete the "Pandemic Essentials: Research On Campus" training course and complete the Student Attestation form prior to returning to campus."*

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2) Adapting Data Collection. *Since it is not feasible for many students to collect data in person, students should consider various adaptations, depending on their field of study. This may include, but is not limited to: online participant studies (ie [Amazon Mechanical Turk \(MTurk\)](#) or [Prolific](#)) with a plan [for online recruitment approaches](#), simulations or modeling, novel analysis of existing data sets, collaborating with a graduate student/post-doc to analyze an ongoing data collection, etc.*

3) Conducting a Systematic Literature Evaluation. *Students may consider a meta-analysis or use existing literature to answer their research question. Fundamentally, this cannot be simply reading literature for background context. The proposal still needs to center on a research question and needs to give insights into what framework will be used to evaluate the existing literature. The student will still need to use background literature to establish what is known and what is not known, and should provide a reading list for the literature they plan to start with for their evaluation. Some coursework to prepare for this kind of methodology is available through [Galter Health Library](#).*

4) Providing a Training Plan. *The committee understands that for students applying to SURGs, prior experience or plans to be trained in a particular methodology (commonly over spring quarter) may be less extensive compared to prior applications to SURGs. The student may consider online tutorials or workshops (ie [NUIT Research Computing Services](#), [Galter Health Sciences Library and Learning Center](#), [Journal of Visualized Experiments](#)); it may be helpful to complete webinars focused on specific platforms like SPSS, techniques for analyzing quantitative data, etc, if the student has not yet completed coursework in this area. Recorded webinars from [University of Saskatchewan](#) and [Social Science Research Laboratories](#) are a good place to start!*

LITERARY/COMPOSITION ANALYSIS: The project studies, evaluates, and interprets literature or composition. The methods are likely influenced by theory within the field of study. In the proposal, the student has clearly defined which pieces will be studied and will justify why these pieces were selected. Context will be given that provides a framework for how the pieces will be analyzed or interpreted. *COVID19 considerations: This kind of work is largely amenable to remote work. However, some researchers have reported decreased access to library based resources in current circumstances. Please demonstrate you have access to the literature or composition you propose to evaluate and interpret.*

NON-ENGLISH LANGUAGE PROFICIENCY: Projects may be conducted in a non-English language. If you have proficiency in the proposed language, you should include context (such as bilingual, heritage speaker, or by referencing coursework etc.) If you are not proficient and the project requires language proficiency, you should include a plan for translation or proof of contacts in the country who can support your research in English. *COVID19 considerations: Same as above, though fewer projects may demonstrate a need for non-English language proficiency, given current international travel restrictions.*

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QUALITATIVE DATA ANALYSIS: The project proposes to analyze data from non-numeric information such as interview transcripts, notes, video and audio recordings, images, and text documents. The proposal clearly defines how the student will examine and interpret patterns and themes in the data and how this methodology will help to answer the defined research question. *COVID19 considerations: Either propose a way to conduct qualitative data collection remotely, or when designing the project, explore archived surveys and transcripts to see if it is possible to analyze existing data in a new and different way.*

QUANTITATIVE DATA ANALYSIS: The project proposes to analyze data from numeric sources. The proposal clearly defines variables to be compared and provides insight as to the kinds of statistical tests that will be used to evaluate the significance of the data. *COVID19 considerations: Either propose a way to conduct quantitative data collection remotely or in adherence to University safety guidelines, or when designing the project, explore existing datasets to see if it is possible to analyze existing data in a new and different way.*

SURVEY: The proposed project will collect data through survey(s). The proposal should clearly defined who will be asked to complete the survey, how these participants will be recruited, and/or proof of support from contacts. The proposal should include the survey(s) in an appendix. The proposal should articulate how the results from these survey(s) will be analyzed. *COVID19 considerations: Either propose a way to conduct quantitative data collection remotely, such as Amazon Mturk or Qualtrics, or when designing the project, explore existing datasets to see if it is possible to analyze existing survey data in a new and different way.*

THEORY: The proposed project will use theoretical frameworks within their proposed area of research to explain, predict, and/or challenge and extend existing knowledge. The conceptual framework serves as a lens through which the student will evaluate the research project and research question(s); it will likely contain a set of assumptions and concepts that form the basis of this lens. *COVID19 considerations: This kind of work is largely amenable to remote work. However, it can depend on the kind of data you are interpreting in the context of theoretical frameworks. Please see the above methodological guidelines for COVID19 considerations if applicable to your starting dataset.*