

Research Plan/Project Summary Instructions

A complete **Research Plan/Project Summary** is required for ALL projects and must accompany Student Checklist ([Form 1A](#)).

The Research Plan/Project Summary should include the following:

- **RATIONALE:** Include a brief synopsis of the background that supports your research problem and explain why this research is important and if applicable, explain any societal impact of your research.
- **RESEARCH QUESTION(S), HYPOTHESIS(ES), ENGINEERING GOAL(S), EXPECTED OUTCOMES:** How is this based on the rationale described above?

Describe the following in detail:

- **Procedures:** Detail all procedures and experimental design including methods for data collection, and when applicable, the source of data used. Describe only your project. Do not include work done by a mentor or others.
- **Risk and Safety:** Identify any potential risks and safety precautions needed.
- **Data Analysis:** Describe the procedures you will use to analyze the data/results.
- **BIBLIOGRAPHY:** List major references (e.g. science journal articles, books, internet sites) from your literature review.

The use of humans, vertebrate animals, bacteria, or hazardous chemicals require more explanation in your project plan.

- Human participants research:
 - **Participants:** Describe age range, gender, racial/ethnic composition of participants. Identify vulnerable populations (minors, pregnant women, prisoners, mentally disabled or economically disadvantaged).
 - **Recruitment:** Where will you find your participants? How will they be invited to participate?
 - **Methods:** What will participants be asked to do? Will you use any surveys, questionnaires or tests? If yes and not your own, how did you obtain it? Did it require permissions? If so, explain. What is the frequency and length of time involved for each subject?

- *Risk Assessment*: What are the risks or potential discomforts (physical, psychological, time involved, social, legal, etc.) to participants? How will you minimize risks? List any benefits to society or participants.
- *Protection of Privacy*: Will identifiable information (e.g., names, telephone numbers, birth dates, email addresses) be collected? Will data be confidential/anonymous? If anonymous, describe how the data will be collected. If not anonymous, what procedures are in place for safeguarding confidentiality? Where will data be stored? Who will have access to the data? What will you do with the data after the study?
- *Informed Consent Process*: Describe how you will inform participants about the purpose of the study, what they will be asked to do, that their participation is voluntary and they have the right to stop at any time.
- *(New 2026) Written Parental Consent*. Every person under the age of 18 participating in a human project (including anonymous surveys) must provide written consent. They may be done on a form prepared by the researcher or digitally (email). Be prepared to provide at least one example of this consent.
- Vertebrate animal research:
 - Discuss potential ALTERNATIVES to vertebrate animal use and present justification for use of vertebrates.
 - Explain potential impact or contribution of this research.
 - Detail all procedures to be used, including methods used to minimize potential discomfort, distress, pain and injury to the animals and detailed chemical concentrations and drug dosages.
 - Detail the animal numbers, species, strain, sex, age, source, etc., include justification of the numbers planned.
 - Describe housing and oversight of daily care.
 - Discuss disposition of the animals at the end of the study.
- Potentially hazardous biological agents research:
 - Give the source of the organism and describe the BSL ([biosafety level](#)) assessment process and BSL determination.
 - Detail safety precautions and discuss methods of disposal.

- Hazardous chemicals, activities & devices:
 - Describe Risk Assessment process, supervision, safety precautions and methods of disposal.
 - Material Safety Data Sheets are not necessary to submit with paperwork.