

Undergraduate Multidisciplinary Research Challenge – Proposal Guideline

A proposal is a request for support of sponsored research, instruction, or extension projects. For this Challenge, you will need to create a proposal for the proposed problem below:

Polychlorinated biphenyl (PCB's) are chemicals that are found in a number of commercial products (transformers, motor oil, inks and dyes) and are persistent in the environment. Levels of PCB's that violate the federal Clean Water Act have been found in the Spokane River and bioaccumulation in the fish populations has been recorded by the Washington State University Department of Ecology. The Spokane River Regional Toxics Task Force (SRRTTF) was formed to address these issues and has established a goal of developing a comprehensive plan to bring the Spokane River into compliance with water quality standards for PCB's and Dioxins. The task force is actively working to analyze existing and future data to characterize the amounts, sources and locations of PCB's and prepare recommendations for controlling and reducing the sources of listed toxics in the river.

As a team, create a proposal designed to work with the local communities in Washington (residential, commercial, agricultural, etc.) to reduce the levels and educate the public about PCB's. This proposal should focus on long-term sustainability and efficacy and should address the affected community as a whole.

Your proposal should include, but not limited to, the following components:

- **Title Page:** Titles should be comprehensive enough to indicate the nature of the proposed work, but also be brief.
- **Abstract:** In the beginning of your proposal you should write an abstract to state the problem, identify the solution, and specify the objectives and methods of your proposal. This abstract should not be longer than 1/2 page.
- **Introduction** (including Statement of Problem, Purpose of Research, and Significance of Research): The introduction of a proposal should begin with a capsule statement of what the problem is, the significance of the problem, and what is being proposed. It is where you need to do your best to draw people's interest to your proposal. The introduction should show how its solution will advance the field or be important for some other work.
- **Background** (including Literature Review): Be sure to (1) make clear what the research problem is and exactly what has been accomplished; (2) to give evidence of your own competence in the subject; and (3) to show why the previous work needs to be continued. The literature review should be selective and critical. Discussions of existing literatures should lead the readers to a clear impression of how you will be building upon what has already been done and how your work differs from theirs.
- **Description of Proposed Research** (including Method or Approach): In this section you will need to present a research method, which is your proposed solution to the problem. Remember that the research method needs to: (1) be realistic about what can be accomplished with limited time and budget; (2) be explicit about any theories the research method rests upon; (3) be clear about the focus of the research; (4) be as detailed as possible about the schedule of the proposed solution; (5) be specific about the means of evaluating the data or the conclusions. After presenting your research method,

you should state the length of time and budget you will need to carry out your proposed method.

- **Limitations and Applications:** In this section you should state the potential problems you may encounter when performing your proposal, and what will the solution be. You can also state the impact your proposal could bring impacts to the local community as well as the whole world.
- **List of References:** In this section you will list all the sources you gathered information from. You need to have at least 10 sources and they must be credible.
- **Personnel:** In this part you should explain personnel arrangements in your team. You should specify the role that each member of the team plays, what contributions each of you does to the proposal, and how your area(s) of study help you create this proposed solution.

After finishing your proposal you should check and see if it can quickly and easily answer the following questions:

- How does the pollution in Spokane River lead to a local and global impact?
- What has already been done in the past to reduce the levels of PCB's and other major contaminants in Spokane River?
- What do you want to do to reduce the levels of PCB's, how much will it cost, and how much time will it take?
- How will you educate the general population about PCB's and other major river contaminants?
- How do you plan to do it?
- How will the results be evaluated?
- How does the proposed project relate to the sponsor's interests?
- What difference will the project make to: yourself, your university, your discipline, your community, the state, the nation, the world, or whatever the appropriate categories are?
- Why should you, rather than someone else, do this project?
- What makes your proposal stands out among other proposals?

NOTE: The proposal should be at least 8 pages long (excluding the reference page), and it should strictly follow MLA format.