



DEVELOPING THE RESEARCH ESSAY

Formatting Guidelines:

- Single-spaced
- 12-point Arial font
- 1-inch margins on all sides
- Page length, including bibliographic information, must not exceed 3 pages.
- **In the header at the top of each page, you must include your name and the name of your academic institution.**
- **The essay must include a title.**
- Format your Research Essay in either one or two columns on a page.
- As appropriate, utilize graphs, tables, and figures in the essay to explain or clarify results.
 - Figures, table captions and bibliographic citations may use 10-point Arial font.
 - Research essays that use mathematical expressions may use LaTeX or other document preparation software to enable proper formatting.
- **Do not include hyperlinks. Materials that are hyperlinked to your research essay will not be read.**
- Save and upload your Research Essay as a PDF file.

The Essay:

The Research Essay provides the Foundation with particularly important insights into your motivation, background, experience, skills, and interest in pursuing a research career. This does not mean that you should simply state that you have these characteristics but that you demonstrate them through your work.

Whether your essay is based on prior research or is a proposal, it is important that your essay clearly describes:

- Your intellectual contribution or expected contribution to the work.
- The skills you brought to the work from prior research or course experiences.
- The skills you have or expect to obtain from participation in the project.

As such, your research essay needs to be more than just a technical paper. Do not repurpose a "slightly expanded" abstract as your Research Essay. While your Research Essay might come from an abstract you have written earlier, the Research Essay needs to be much more.

The additional information that is sought aids Goldwater Scholarship reviewers to evaluate your potential for becoming a research scientist, engineer, or mathematician. Where appropriate, you are encouraged to use the word "I" as opposed to "we" or "our team" in your essay to help clarify your specific role in the work. It is important for our reviewers to know what you contributed to the research.

It is also helpful for you to demonstrate that you "think like a scientist." If you are describing a research project that you conducted, consider discussing additional work that you might do or, if you have completed the entire project, describe a new project that might be undertaken. In the latter case, explain how the skills you learned while working on your project will set the stage for a successful new work.

Regardless of whether the Research Essay reports on previous work, or is a proposal, include a bibliography that uses up-to-date, refereed journal articles. Use diagrams and figures, as appropriate, but not at the expense of a quality narrative.

While the disciplinary reviewers who will be reviewing your essay and application will be broadly familiar with work in your discipline, it is unlikely our reviewers will be experts in your sub-field. Furthermore, if your application needs to undergo a secondary review, the review may be done by an individual from another discipline. Write your research essay and other materials for individuals who are broadly trained in the sciences, engineering, and mathematics, not for subject matter experts.

Use space judiciously. Balance the various elements of your essay so that no one section dominates the essay. Reviewers find a short opening paragraph that provides a "broader picture" that explains the importance of your research and your motivation for doing the work to be helpful. Again, when describing the project, be certain to talk about your specific contributions to the work and the skills you acquired. As reviewers seldom open links to other work, you are encouraged not to incorporate them into your research essay.

Finally, while you must write the Research Essay, you can work with your faculty and research mentor(s) to ensure your Research Essay is scientifically accurate, uses appropriate scientific format, and provides an appropriate balance among the various elements that make up the Essay. Always anticipate the need to write multiple drafts, reviewed by your faculty mentor and, when possible, by a non-expert in the field. Write, rewrite, and then rewrite again your research essay. Reviewers have a limited time to read the essay, so you want to make certain your essay makes your points clearly and succinctly.

Confidentiality of the Work:

Information disclosed in your research essay is held in confidence. All Foundation reviewers sign a Confidentiality and Conflict of Interest Agreement.

Submitting Your Research Essay:

You are responsible for up-loading your Research Essay to the Goldwater online site. Application Site 2 – Upload Supporting Documents provides instructions on how to upload your Research Essay and other documents.