Goldwater Scholarship Essay Guidelines

Courtesy of Dr. Meredith Malburne-Wade

Short Answers/Fill-in Responses

You will find each of the short answer questions listed below; the character limits are also included. Under each short answer question is guidance offered by the Office of Fellowships Advising here at JMU, as well as any guidance offered by the Goldwater Scholarship. Many of these are drop down menu or short fill-in sections.

1. If you are planning on attaining a M.D., M.D./Ph.D., D.O., D.O./Ph.D, D.V.M, or D.V.M./Ph.D. degree, explain why is a medical (M.D., D.O.) or veterinary degree (D.V.M.) is necessary for you to achieve your research goals. (2000 character limit including spaces)

Guidance: This question is optional. If it does not apply to you, you should leave it blank. If it does apply to you, be sure to emphasize your research goals and explain why you cannot conduct your target research without the additional degree (MD, DVM, etc.).

2. In one or two sentences, describe your career goals and professional aspirations. This statement will be used in publications if you are selected as a scholar or honorable mention. (200 character limit including spaces)

Guidance: Do not use full sentences here: keep it to a blurb that highlights your intended graduate degree and your intended career path. Goldwater provides this example to help you think about the layout: "Ph.D. in Molecular Biology. Conduct research in biomedical science and teach at the university level."

3. What are your career goals and professional aspirations? Indicate which area(s) of mathematics, science or engineering you are considering pursuing in your research career and specify how your current academic program and your overall educational plans will assist you in achieving your career goals and professional aspirations. (3000 character limit including spaces)

Guidance: Expand upon what you listed in the previous question. Talk about your preferred graduate school program(s) (if you have identified a school or schools). Talk about your specific area(s) of interest, including what kind of research you hope to conduct at the graduate school level and beyond. Envision what your future career looks like, and describe it to the reader. (Do you want to teach? Work at a university? Work for a corporation? Work for a federal agency? Doing what? With what end goals in mind?) Finally, talk about how your undergraduate classes, research, and internships support the path you have envisioned. In short: what kind of contribution do you hope to make to the STEM world and how are you preparing to make that contribution?

4. Describe an activity or experience that has been important in helping shape or reinforce your desire to pursue a research career in science, mathematics or engineering. (1500 character limit including spaces)

Guidance: Choose an activity related to your undergraduate studies, research, presentations, etc. that helped you decide to be a scientist. This answer should be clear and specific; avoid generalities ("I've always loved science") and instead give us an example ("When I presented my poster on hot subdwarf stars at the XYZ conference, I learned what it meant to present my research effectively, answer questions about my research, and learn from my peers. I was most excited by…"). If you had a big epiphany moment regarding your future career—wonderful! Include it here. If you've developed that interest over time—also wonderful! Detail it here.

5. In what way did COVID-19 or other hardships over the past couple of years affect your research career plans and did those events alter your ability to pursue those plans? If you have had to make changes, in what way(s) did you adapt to the situation? If COVID-19 did not influence your plans, simply state there was no impact. Please note that your application will not be looked at less favorably in any way if you have not been significantly impacted. (1500 character limit including spaces)

Guidance: Answer honestly. Consider if some of your classes moved online and became more difficult, if you lost out on time in the lab, if you fell ill, etc. If there was an impact, explain how you worked through or around the issue. If no impact was felt, just state there was no impact.

6. Optional question, answering the question below will depend on your personal experience. Goldwater Scholars will be representative of the diverse economic, ethnic and occupational backgrounds of families in the United States. Describe any social and/or economic impacts you have encountered that influenced your education either positively or negatively and how you have dealt with them. (1500 character limit)

Guidance: I don't recommend leaving this response blank if at all possible. Share only what you are comfortable sharing, and do remember that positive impacts are also welcome here. What personal factors have made your road to a STEM career easier or harder?

7. In chronological order, from earliest to most recent, list up to five research projects you consider to be your most significant work associated with your interests in the sciences, mathematics or engineering. Briefly describe the project, being certain to include a description of your involvement in and contributions to the work. (response length varies—see below)

Guidance: You are given space for up to 5 research projects. List the most significant projects to your development. Consider your semester work and summer projects. Please pre-plan your entries: you cannot change the order they appear in once they are entered without deleting/re-entering information. You will be asked to title each project, provide dates, list how many hours/week you participated, and list the title (for example: "Professor of Chemistry") and names for up to three mentors per project. You will then be given 1000 characters to describe your research including "your involvement AND contribution to the project." Think about what your unique contribution was. Think about how your projects—or your long-term involvement with a single project—show growth,

progression, and development. Finally, there is a section for any presentations or publications that came from each project.

8. Briefly describe up to five (5) research skills you have developed that will be important going forward in your research career. You may have acquired these skills by participating in one of the research projects you have reported, from courses, or from other life experiences.

Guidance: Consider both technical skills and skills such as project management.

8. In order of importance to you, list up to five activities and/or accomplishments you were involved in while in college. (response length varies)

Guidance: You will be asked for multiple details here: the activity, the organization, the scope (local, national, etc.), any leadership roles you held, the length of your involvement, and a description of your role and/or involvement. Pick 5 things that really matter to you. If you are very involved in Student Government, list it. If you are in marching band, include it. It's equally okay if all your extracurricular activity is STEM based or none of it is STEM based. They are looking for a broader view of you as a student.

9. Recognitions

Guidance: You will be asked to list recognitions and give brief descriptions. Think about departmental honors, NSF REUs, scholarship, Honors College, Dean's List, President's List, etc.

10. Please describe how your study abroad experience is relevant to your career aspirations.

Guidance: This question is only applicable if you have studied abroad.

11. Coursework

Guidance: You will be asked to list courses in your major in which you are currently enrolled and those in which you will enroll; you will also be asked for future STEM courses outside your major. You may not have space to list all courses: in that circumstance, list the most advanced courses and the ones most important to your research goals.

Goldwater Research Essay

The Goldwater Research Essay, along with your letters of recommendation, serves as the most important part of your application. Put the majority of your emphasis here.

Content: Goldwater offers this guidance: "The strongest Research Essays are typically based on prior or current research experience. The Research Essay should include 1) description of the issue or problem,

2) discussion of the research methodology, and 3) discussion of the student's findings. It is very important that the essay details the student's specific contributions to the project and indicate the specific skills/expertise the student developed as a result of participation in the project. To demonstrate that the applicant "thinks like a scientist," the essay might, as an example, describe future work the experimental data suggests or describe an entirely new work that is based on the skills and insights the student learned from the experience. The Research Essay should include appropriate bibliographic information and references."

Your reviewers will likely be in your discipline, but not necessarily your sub-field. Therefore, you should write your Research Essay for readers broadly trained in STEM, not subject matter experts. Avoid excessive jargon, spell out your acronyms the first time you use them, and give enough context for readers to understand your project. Be sure to think about what is innovative/important about your work, what YOU have contributed (beware the use of the ambiguous "we" in your Research Essay: Goldwater wants to know what YOU have done. Of course, you can contextualize it within the work of your lab or group, but don't contextualize it so much that you disappear). Discuss next steps—think about both what you will do at JMU as you move forward and how either this project (or the skills you've gained) lead you into your graduate level work.

Your faculty mentors are your best resource for your content. Alongside your mentors, Dr. M will gladly help you with your overall writing and with understanding and meeting Goldwater's expectations.

Formatting: Essays must be written in 12 point Arial font with 1" margins all around. Page length, including all references and images, cannot exceed 3-pages in length. Single spacing is expected, but you can use one or two columns. If you include images/graphs/figures, you can use Arial 10 point font for the captions. You can use Word, LaTeX, or other software as you deem fit to create the document, but it should be converted to a PDF for submission. Make sure your name and James Madison University appears in the header of each page.