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GENERAL GUIDANCE FOR APPLICANTS

A competitive application requires planning, attention to detail, and sufficient time to work with individuals who can support the student’s application. All applicants need to plan appropriately.

As materials are prepared, students should keep in mind that the Goldwater Scholarship is awarded to those who show the greatest potential for becoming one of the United States’ next generation of research leaders in the natural sciences, mathematics, and engineering. All elements of an application should help the Foundation understand how you intend to be one of these leaders.

General guidance when preparing an application:

- Carefully read and review all of the required application information and materials.
- Contact the Goldwater Scholarship Campus Representative (CR) as early as possible to inform the CR of your interest in applying. Carefully follow your CR’s instructions regarding the campus application process.
- Know and stay on top of all deadlines (including those set by your institution’s CR and those established by the Goldwater Program).
- After discussing prospective references with your CR and determining whom you will ask to write your letters of recommendation, contact your letter writers as early as possible–no less than a month, but ideally more than a month in advance of the campus deadline.
- Work with individuals who can assist and provide feedback throughout the application process (i.e., Goldwater CR, mentors and LOR writers).
- Make certain the information provided is accurate and reported in a way that is asked for in the application.
- Proofread, reflect, revise, and again proofread, reflect, revise–all application materials! Enlist others to review the application for science, grammar, format, etc.

Well in advance of deadlines, make certain all application materials are in order (i.e., check with your CR).

[Click here, for more helpful information on the FAQ page.](#)

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DEVELOPING THE RESEARCH ESSAY

Formatting Guidelines:

Research Essays should be single-spaced and use 12-point Arial font, with 1-inch margins on all sides. Page length, including bibliographic information, must not exceed 3 pages. The essay must include your name and the name of your academic institution in the header at the top of each page. 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. Save your Research Essay as a PDF file. Although the upload site accepts JPG and PNG file formats, PDF files are preferred.

COVID-19 Considerations:

While the availability of hands-on research opportunities is improving, the Foundation is acutely aware that COVID-19 has over the past couple of years delayed, canceled, or severely restricted many traditional research experiences. In the past, research essays were often based on these experiences. Rather than viewing the situation brought about by COVID-19 as a setback, the Foundation sees this as an opportunity that enables students to understand that research does not just exist within a traditional research laboratory but encompasses all the steps that create and disseminate new knowledge.

We continue to encourage faculty and students to think broadly and look for collaborative work that might include in-depth literature reviews, analysis of existing data sets, computation studies, among others. Additionally, the research essay might propose a new experiment that tackles an important and interesting question in your field of interest to you. We also anticipate that there will be students who use this opportunity to pursue independent research e.g., a student who is developing a data-driven website that tracks global COVID cases to study the impact of travel restrictions or the student who is investigating the efficacy of novel cleaning methods for N95 masks. Regardless of type, all the above essay types can and should include a description of the work’s motivation, experimental design, data analysis and outcomes, as well as bibliographic information.

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 1) your intellectual contribution or expected contribution to the work, 2) the skills you brought to the work from prior research or course experiences, and 3) 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 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.

INSIGHTS AND TIPS FROM GOLDWATER SCHOLARS

Insights and Tips – The application experience

The magic of the Goldwater application process is that you learn more about yourself and your career goals by working through it [application]!

I learned more about my field of research and clarified my career path post-graduation.

Applying for this scholarship is like a workshop on how to effectively apply for graduate programs. Everyone should do this.

I learned my own story. Filling out the application forced me to think very carefully about what I have done, what I am doing and what I plan to do. In that process, I recounted all the efforts I had to take to get to where I am. It made me feel proud and satisfied. It is nice to know my own story, and it is nice to know how to tell it.

I learned about how to present myself and my work to an audience. This was a skill that I gained as a result of completing my application. Part of this growth was as a result of working with my campus representative on my application and was not something I could have known ahead of time.

I learned how to manage and prioritize my time!

Going through the application process helped me reach a more concrete understanding of what I want my research career to be like and of the steps that I need to take to reach it.

In order to effectively answer most of the questions in the application, I had to reflect on my life and how it led me to this application process. I had to identify the key struggles within my life and identify why I remain motivated to pursue my interests. Placing these ideas on paper in the form of an application only solidified my motivation to pursue a career in academic research.

I learned to write more effectively and to receive invaluable feedback from my mentors.

Going through the rigorous application process for the Goldwater scholarship has definitely prepared me for upcoming graduate school applications. It forced me to think critically about how I envision my future and what steps I need to be taking to achieve those goals.

Completing the Goldwater Scholarship developed my skills of scientific writing and communication tremendously. I was forced to communicate my research in an understandable yet eloquent way for the benefit of the reader who may have no background in my respective field. Through many revisions of my research essay I identified my strengths in scientific writing and learned how to see and remedy my weaknesses. Receiving a Goldwater Scholarship has given me a tremendous amount of confidence to pursue my relatively lofty post-graduate goals in biomedical research.

This is the 2nd time I applied for the Goldwater Scholarship and I worked very hard in between my two applications. Going into decision day, I wasn't as nervous as I was my first time because I knew had done everything I could possibly do to persuade the committee that I am worthy of this award. Being awarded this scholarship has shown me that my hard work is recognized and that I can do what I set out to do.

Going through the application process pushed me to reflect on my trajectory: where I've been and where I'd like to go. It helped me condense my path into a story and made me see my research experiences through a different lens-- a lens focused on my contributions and creativity. Now, I am more cognizant of my research decisions and actions and how they fit into this story.

Applying for the Goldwater scholarship helped me realize just how much my research has enriched my undergraduate life. It encouraged me to reflect on the experiences I've had, the skills I've gained, and the people I have met throughout just two years of research. In turn, I am now more enthusiastic than ever about my future education and research.

A lot of my achievements, aspirations, goals were in my head but I hadn't thought of how to put it all on paper. This process allowed me to do that, and when it comes time I'm sure applying to graduate school will be a lot easier.

I applied for the Goldwater scholarship both sophomore and junior year. Quite honestly, I did not expect to receive a scholarship either time, but I wanted to go through the process for professional growth. Goldwater forced me to go out of my comfort zone, and learn how to write an effective research statement. I had to learn how to juggle a full course load and extracurricular activities, while making quality improvements on my Goldwater application throughout the school year. Going through this process, I learned how to work toward goals and how to prioritize my time and commitments. This personal and professional growth benefited other aspects of my life (e.g. applying to summer internships, coursework, etc.)

Insights and Tips – Advice for potential applicants

The Goldwater application process is a marathon--not a sprint!

Leave plenty of time to reach out to your mentors and get feedback on your essay from people not directly in your research group.

Advice that I would give for those going through the application is to start early and look through the entire application early.

At the outset, I almost did not apply because I was not sure if I was competitive enough. I had solid research experience and clear long-term goals for a research career, but when I looked up information about Goldwater online, some people on online forums stressed the importance of having a perfect, or near-perfect, GPA as well (at the time of my application, I had a 3.79, which wasn't bad, but wasn't perfect). After going through the application process and after receiving the award, I now know that I should have been more confident about applying. *[Foundation comment: The GPA range of students awarded a Goldwater scholarship in the 2020 competition varied from 3.3 to 4.0.]*

It would have been helpful if I had all the information for my past research projects organized previously. I had to spend a lot of time organizing this information for the scholarship.

I think recognizing early on the importance of how much is expected from you (i.e. this is not like other scholarships or applications that you could throw together in say a week or so). Also understanding the

importance of getting parts of the application done very early on so that you can have many DIFFERENT eyes look over the application.

No matter the category, focus on relaying why research is a part of who you are to the reviewers; let the passion you have for research shine through on every aspect of your application.

I got started early on the essay, but should have gotten started on the other short essay response questions earlier. I did not realize how time consuming editing those would be.

The importance of having several people review your application materials cannot be overstated. Additionally, it is important to seek out feedback from both people in your field (i.e., a research adviser), and those who are less familiar with the specifics of your research.

Summer research experiences are important not only for the hands-on lab work, but also for the connections you build with faculty and other mentors. I would just like to emphasize the importance of building a relationship with faculty early in your education.

It would have been helpful to know that three recommendations are required, as that is no small number, and good relations need to be established with teachers before asking for such an important recommendation.

It would have been helpful to know that there is more of an emphasis in the essay on telling the story of the research, rather than acting as a technical paper in disguise.

I learned that the research essay was more personal and not strictly a research article. My first draft was a research article but through proper guidance from my campus representative, I made it into a more personal essay about my research and gains.

To future students who apply I would give the advice of not being intimidated by the application. There are no wrong answers and the application is there to showcase your current accomplishments and where you envision these taking you in your professional life. Also, and this goes without saying, have several people read your application to make sure what you're trying to showcase is being communicated effectively to the reader/reviewer.

Insights and Tips – Impact of winning the Goldwater scholarship

Receiving the Goldwater Scholarship provided valuable confirmation that I was on the right career path, in addition to adding a highly renowned award to my CV. It has also connected me to a broader community of motivated individuals who may very well become my colleagues. As a junior-year award, I believe it was valuable preparation for future competitive award applications, as well as for some of my applications to REUs this year.

It assured me that I am moving in the right direction with my research career.

Going through this process and receiving the scholarship has strengthened my relationships with my professors/research advisors.

I am the second person to ever receive the award at my institution. I hope by winning and making it known that HBCU students need to increase their presence in these national/international competitions, that I encourage more students to apply.

The Goldwater Scholarship application process forced me to confront my fears and uncertainties about the road ahead, but also helped me learn to believe in myself. Receiving the scholarship showed me that my work is important to people other than myself and that I have the skills it takes to succeed.

It helped me with school and tuition costs. I can focus more on school and research than working outside of campus to pay for expenses.

Truthfully, this scholarship will reduce my financial burden and allow me to spend more time studying and learning. For future semesters, this scholarship will allow me to focus on receiving better grades and on improving my knowledge retention in various classes, as well as, increase my chances of being accepted by a prominent graduate school. In addition, I will be able to maximize my college experience. Instead of working at a minimum-wage job, I can focus on extra-curricular activities that are meaningful and adds value to my degree. . . . This scholarship means that all my hard work has really paid off and that I have made my supportive family very proud. The scholarship, for me, is not the end but just the beginning of my college education.

The application process was stressful honestly, even though I enjoyed it in the end. I decided to apply fairly late after attending a conference and becoming more confident in my ability to be a competitive applicant. After I got over my own nerves, the process was much less stressful. I enjoyed how I finally put my post graduate plans onto paper and now I find myself just trying to decide the path to get there. Receiving the scholarship is shocking! I was preparing myself for a “no,” but I am so grateful for being chosen. It motivates me more to pursue science, knowing that I am among the most promising young scientists in the country. As a person of color and believed to be the first African American to receive the scholarship at my university, I serve as an inspiration for younger STEM students of color to also enter the sciences.

Receiving a Goldwater scholarship is not just the sum of my academic success; it represents the selfless mentorship of my research advisers, professors, reviewers, and the entire team that supported me through this process.

Receiving the scholarship helped me realize that I do belong in science and that I am a successful scholar.

The application process significantly improved my ability to articulate my research goals and experience, my familiarity with technical writing, my confidence in my own accomplishments, and my level of comfort writing scholarship and fellowship applications. Receiving a Goldwater scholarship is a tremendous display of support in my research experience and goals. Being named a 2020 Goldwater scholar has been incredibly affirming; physically disabled people are underrepresented in research and in STEM fields in general, and this award is a significant affirmation that I belong in this field and can be successful in a career in research.

I have had a lot of financial struggles out of my control in the last couple of years. This scholarship has not only greatly assisted me in feeling more confident in the career that I want, but has also made it incredibly more viable.

Receiving the Goldwater scholarship reaffirmed my desire to pursue a career in biomedical research and I am so proud to bring this recognition to my university and simultaneously be recognized as the first woman and non-fully white Goldwater Scholar at my university as well!

It's somewhat surreal that I've been able to earn the Goldwater, coming from a genuine middle-class American town and family (especially being first generation). It gives me hope that someone out there acknowledges that I am a real scholar and that I belong where I am.

Going through the Goldwater application process in 2019 was a very positive experience for me even though I did not receive the scholarship that year. During the process, I met with my campus representative and advisor and often discussed what I want for my future. It was a good opportunity that made me focus and think about my passions and encouraged me to look into graduate programs that I'd like. Doing it in 2019 actually allowed me to find the perfect research opportunity for the summer of 2019, which ended up improving my application for this 2020 cycle.

When I first heard about the Goldwater, I was intimidated at the idea of competing against thousands of the best undergraduate scientists across the country for this award. I talked it through with my campus representative and he encouraged me to apply. It took me many, many hours to craft my application, I wrote and edited and rewrote, spoke to my lab members for support and ideas, and more importantly, spent time with my research and with myself to sort through my goals and aspirations as a scientist. The value of the knowledge I gained of myself and of my research is immeasurable. I would not have taken this critical angle if not for completing the Goldwater essays and questions. I was incredibly honored and a little bit surprised when I got nominated by my university, and even more so when I received the scholarship. It all felt surreal at first, it was definitely hard to take in. Already receiving the Goldwater has impacted me - I feel more confident in my research and my future as a scientist and I am considering applying for more competitive scholarships/research years in the future. I'm sure as I continue in my research career and as I apply to graduate schools, having the Goldwater scholarship will only continue to play a positive role in my journey.

I have had so many incredible mentors devote time and resources to help me grow as a scientist and researcher. I'm so grateful that I'm able to share this accomplishment with them and let them know that I'm making the most of everything they've done for me.

I wrote my application for this scholarship while I was studying abroad. I was isolated from my home campus and my mentors, but we decided to try for it anyway. The application asked some hard questions about my future plans and my motivation for pursuing a research career, but I feel that taking the time to consider those questions before returning to my life in the U.S. was incredibly beneficial. I know why I want to continue in ecological research, and I know why I value pursuing a higher degree. Receiving a Goldwater scholarship is a huge honor, and provides a sense of validation for those ideas I put in the application. However, I would say that the process of writing and considering how my courses and research now are aligned with my future career goals was equally impactful and important.

As a first-generation woman in science, I am constantly carrying a sense of imposter syndrome. I always feel as if my peers are more qualified than I am, they're smarter, and I am just faking my way through. It is difficult to take credit for an accomplishment. I had almost convinced myself not to apply for the Goldwater to begin with. Once selected at the university level, I was forced to look at my accomplishments and develop as a writer throughout the process. Actually receiving the award still does

not feel real, but I am now more confident in my abilities to apply for something that feels out of reach. There is no doubt in my mind that because of this scholarship I have a greater chance of being admitted to a top tier graduate school and pursuing my dreams.

There are two impacts I see: first, by going through the application process I learned to reflect critically on my skills, aspirations, and experiences, and to use the resources at my campus and my connections with professors. Second, as a result of the Goldwater scholarship, Fall 2020 will be the first quarter where I will not be working in a job in addition to research and class work: as a result I will be able to spend an additional 15-20 hours a week on my research.

Receiving the Goldwater scholarship will allow me to stay at my current institution for the next academic year. Additionally, it will significantly reduce my financial burden for the upcoming academic year.

Applying for the Goldwater was one of the best decisions I made this year! I was unsure if I should apply this year or next year since I'm only a sophomore and would be competing against the internal application pool of sophomores and juniors, but I decided to take a leap of faith and apply anyway, reassured by the fact that I could apply again if I didn't get it. Going through the application process itself really helped me grow as a young scientist -- especially writing the research proposal. I had written many research proposals before that, but the relatively short page length, incentive of applying for a scholarship, and necessity of making it accessible to non-specialists pushed me to really clarify my research rationale, progress, and goals and condense them into 3 pages. I think this will be an invaluable skill for future grant applications, and has already improved my ability to write other research proposals. Writing the narrative essays also clarified my own goals and aspirations for the future, such as my rationale for pursuing an MD/PhD (previously, I was torn between pursuing a PhD or MD/PhD), and got me thinking about what I might want my future lab to work on. It was so nice seeing my entire application come together after many versions into a complete package that made me feel good about my research experiences, regardless of whether I was awarded a scholarship. Receiving a scholarship has truly been a dream come true--a dream I've had since I first heard of the Goldwater in my senior year of high school. . . . It felt amazing to share the good news with my mentors, who have been so influential in helping me develop scientifically--I hope to pay it forward one day!

I have been paying for my tuition every semester with some help from my parents, so every scholarship I receive is a major celebration. In particular, the Goldwater will pay for the majority of my last year of college, which allows me to focus on my NSF GRFP application, graduate school applications, honors thesis, classwork, and athletics.