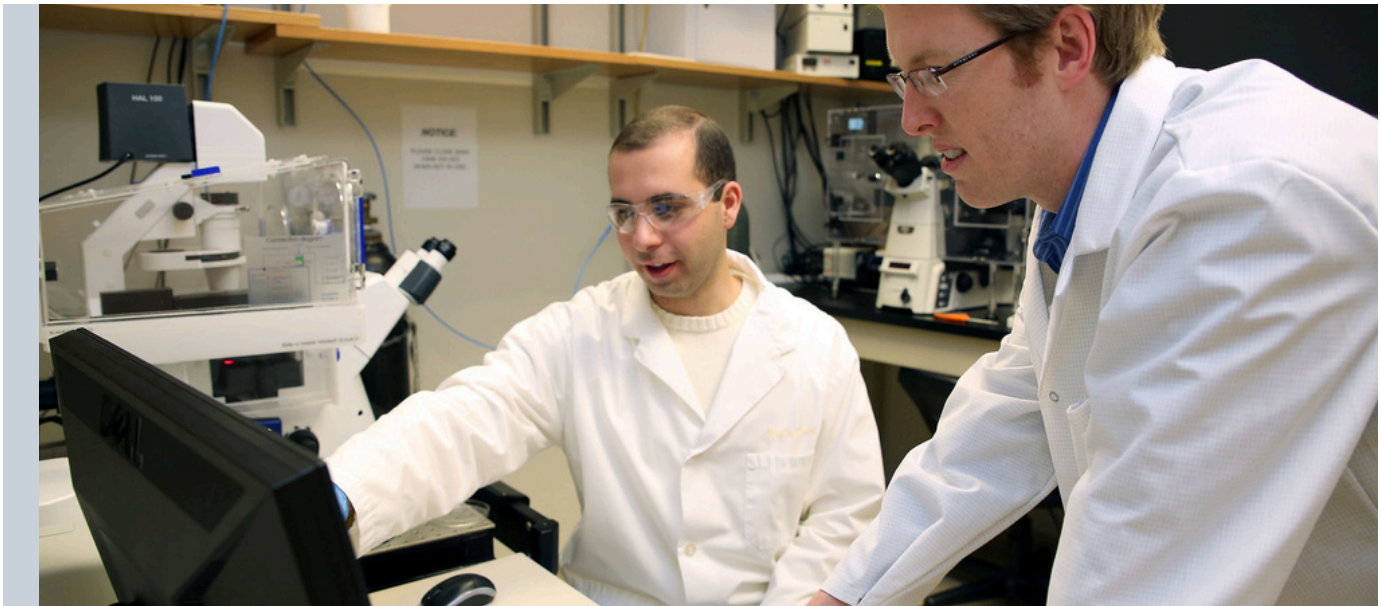


2026 Quick Guide

NSF Graduate Research Fellowship Application



Plan your application process

1. **Verify eligibility.** Most eligible applicants are:
 - a. senior undergraduates,
 - b. bachelor's degree holders not yet enrolled in a graduate degree,
 - c. students in eligible joint bachelor's/master's programs, or
 - d. first-year graduate students who have completed less than one academic year in their graduate program.
 - e. Applicants must be U.S. citizens, nationals, or permanent residents and should review the current solicitation's eligibility requirements and exclusions before investing significant effort in an application as some research topics are ineligible (see IV., 3, b, c, d).
2. Listen to **"Prepping for NSF GRFP Applications" of Communication Mechanics**. And read the **Solicitation**.
3. Sign up for and read the applicable materials on the **Prestigious Fellowship's Canvas page**. **Email Dr. Fennell** for access to the Woodruff GRFP Teams page.
4. Plan your application with your advisor.
5. **Request reference letters:** At least two letters must be received for the application to be reviewed; NSF accepts up to five requests and considers the three highest-ranked letters received. Reference letters are due October 16, 2026, at 8:00 p.m. Eastern Time.
6. **Request official transcripts.** The new instructions **require official** undergraduate transcripts. Graduate transcripts may be unofficial **only** in the circumstance stated by NSF for first-year, first-term graduate students whose institutions do not provide official transcripts.
7. **Attend an info session.**
 - a. Sep. 10, 11-12, Woodruff, Love 183 (open to all)
 - b. Sep. 11, 12-1:45, Love 184, MSE (open to all, RSVP Required)
 - c. Sep. 15, 11-12, ES&T L1255, ChBE (open to all, RSVP Required)
8. **Write your application.**
9. **Revise your application.**
 - a. Oct. 1, 2-4, CULC 211 Prestigious Fellowship's GRFP Writing Bootcamp
 - b. Visit the Naugle Writing and Communication Center
 - c. Schedule a Meeting with Dr. Fennell, MRDC 3410
10. **Attend the COE workshop:** October 8, 3:30-5:30 in IC 105.
11. **Make final revisions.**
12. **Submit** before the engineering deadline: October 22, 2026 8pm Eastern Time.



Georgia Tech College of Engineering
**George W. Woodruff School
of Mechanical Engineering**

Requirements and NSF language are based on NSF 26-526 and the NSF GRFP application and review pages current as of August 2026. Writing strategies and examples are instructional guidance from the Woodruff School and should not be interpreted as additional NSF requirements.

Intellectual Merit

Required Focus 1 of 2

Across the two statements: In the personal statement, demonstrate your potential to advance knowledge through evidence from your preparation, experiences, intellectual ability, initiative, creativity, communication, teamwork, and persistence. In the research plan, demonstrate how the proposed work will advance knowledge through its question, rationale, originality, methods, feasibility, and anticipated contributions.

This phrase must appear on a line by itself in both documents.

Answer the following questions:

Demonstrating Preparation and Potential (Building Ethos):

- Why am I fascinated by my research area, and what issues within the scientific community am I most passionate about?
- What experiences demonstrate my leadership, initiative, or other relevant strengths?
- What experiences, skills, and perspectives prepare me to succeed in this research and contribute to my field?
 - List technical knowledge, skills, teamwork, and relevant training or mentoring.
- How will receiving the fellowship contribute to my career goals?

Advancing Knowledge:

- How does my research contribute to the existing body of knowledge?
 - Identify specific gaps in the literature or areas of uncertainty that your research will address.
- Can my research bridge disciplines or foster interdisciplinary collaboration?
 - Note how your research might impact multiple fields or lead to new interdisciplinary approaches.

Creativity and Originality:

- What makes my research idea innovative?
 - Identify novel methodologies, perspectives, or theories you are employing.
- Does my research have the potential to redefine or challenge existing paradigms?
 - Reflect on how your work might shift current understanding or practices in your field.

Research Design and Rationale:

- Is my hypothesis or research question clearly stated and justified?
 - Ensure that your research question is well-defined and backed by a logical argument.
- Have I chosen the most appropriate methods and tools for my research?
 - Evaluate whether your chosen methods are the best fit for addressing your research questions.
- How is my research feasible for the allotted time and institutional resources?
 - Consider alternative strategies or methodologies if the primary plan encounters challenges.

Assessment of Success:

- What specific outcomes will indicate that my research is successful?
 - Define clear and measurable indicators of success.
- How will I track progress and adapt my research plan if needed?
 - Establish a mechanism for monitoring and adjusting your research as it progresses.

Qualifications and Preparation of the Applicant:

- What past experiences demonstrate my ability to successfully conduct this research?
 - Highlight relevant past projects, publications, or technical skills.
- How do my mentors, advisors, or collaborators strengthen my research proposal?
 - Describe the expertise and roles of any collaborators or mentors involved in the project.

Resources and Support:

- Do I have access to the necessary equipment, software, and facilities?
 - Ensure that you have or can secure all the resources needed to carry out your research.
- Are there any potential collaborations that could enhance my research?
 - Explore opportunities for partnerships with other institutions, labs, or industry.

Broader Impacts

Required Focus 2 of 2

Broader Impacts refers to the potential to benefit society and contribute to the achievement of specific, desired societal outcomes. **This phrase should appear on a line by itself in both documents.** Consider the questions:

1. What is the potential for the proposed activity to benefit society or advance desired societal outcomes?
2. To what extent do the proposed activities suggest and explore creative, original or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized and based on sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team or institution to conduct the proposed activities?
5. Are there adequate resources available to the principal investigator (either at the home institution or through collaborations) to carry out the proposed activities?

Think Beyond Activities

Strong applicants explain outcomes. Instead of asking: What outreach will I do? What mentoring will I do? **Ask:**

- What change do I hope to create?
- Why should reviewers believe this activity will help create that change?
- What evidence suggests the approach is appropriate?
- How will I know whether it worked?

Build a Credible Impact Argument

1. What problem or need exists?

Identify a real need, challenge, or opportunity.

- Lack of public understanding of emerging technologies.
- Need for improved engineering workforce preparation.
- Need for technologies that improve quality of life.

Explain why the issue matters.

2. What will you do?

Describe specific actions rather than broad intentions.

- **Weak:** I hope to inspire students.
- **Stronger:** I will develop engineering design workshops for local high school students and incorporate activities from my research area.

3. Why is this approach reasonable?

Connect your activities to your experiences, partnerships, training, or prior success.

- Why are you the right person to do this work?
- What resources support your plan?
- What existing organizations, programs, or partnerships increase the likelihood of success?

The goal is to demonstrate *feasibility*, not just good intentions.

4. What outcomes do you expect?

Focus on results rather than effort. Consider outcomes such as:

- Enhanced community engagement.
- Broader access to research opportunities.
- Translation of research into practical applications.

Reviewers are ultimately interested in impact, not activity alone.

5. How will you assess success?

Describe how you will know whether it worked.

- **Products:** workshops, publications, curricula, software, datasets, training materials.
- **Measures of reach:** attendance, participation, downloads, distribution, adoption.
- **Measures of change:** learning gains, new skills, access to opportunities, sustained participation, changes in practice.
- **Evidence sources:** pre/post responses, participant feedback, follow-up surveys, partner feedback, usage records.

Common Broader Impacts Pathways

Choose activities that authentically align with your experiences and goals.

STEM Education

- Curriculum development
- K-12 engagement
- Undergraduate mentoring
- Educational resources

Public Engagement

- Community outreach
- Science communication
- Public talks
- Informal learning opportunities

Increasing Participation

- Mentoring
- Reducing barriers
- Supporting student success
- Expanding access to opportunities

Innovation and Societal Benefit

- Improving health, safety, or quality of life
- Advancing technology
- Economic competitiveness
- Workforce development

Partnerships and Capacity Building

- Industry collaboration
- Community partnerships
- Interdisciplinary initiatives
- Research infrastructure

Reviewers Look For Evidence

A reviewer should **never** have to ask:

- "Why would this work?" or
- "How would the applicant know whether it succeeded?"

Every broader impacts activity should clearly identify:

Need → Activity → Rationale → Outcome → Assessment

Personal Statement

3 Pages, Required

Research.gov already collects structured information about your education, experience, honors, publications, and presentations. Do not use the personal statement merely to repeat those entries. Instead, select and interpret experiences that demonstrate your preparation and potential as evidence to claims about your skills, qualities, and preparedness.

The NSF funds *you*, not the project. This distinction is key to crafting a compelling personal statement. Your goal is to present yourself as a future leader in your field—someone who can help the NSF fulfill its mission of advancing science and benefiting society. Therefore, it is crucial that you create a vision of yourself as a future peer who can help the NSF achieve their goals.

Demonstrate Potential, Not Just Accomplishment

Explain what experiences reveal about intellectual ability, initiative, creativity, communication, independence, teamwork, and persistence.

Select and Interpret Evidence

Do not summarize every experience. Choose experiences that help the reviewer understand how you developed.

Use Anecdotes as Evidence

Your personal statement should be rich with anecdotes that *demonstrate* your abilities. These stories are not just filler; they are your evidence. They provide context and depth to the skills and experiences listed on your CV, illustrating how you've applied your technical knowledge, overcome challenges, and made significant contributions in real-world scenarios.

An anecdote should show:

1. Situation or problem
2. Choice or action
3. Result
4. Interpretation: what the experience demonstrates
5. Forward connection: how it prepares the you for future goals

Weak Summary: I worked in a materials laboratory and learned several characterization techniques.

Better Interpreted evidence: When inconsistent microscopy results threatened our comparison, I traced the variation to sample preparation, revised the polishing procedure, and documented the protocol for the group. The experience strengthened my ability to solve problems independently while communicating improvements that helped the team.

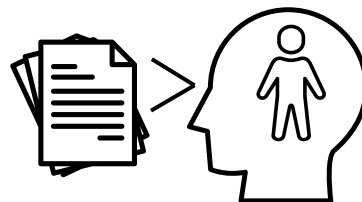
Build a Past–Present–Future Trajectory

Think of your personal statement as a narrative that ties together your past experiences, current work, and future aspirations. Each anecdote should build toward a larger story—one that positions you as a future leader in your field, someone who is not only technically proficient but also capable of making broader societal impacts. Your statement should strike a balance between reflecting on your past accomplishments and outlining your future potential. Highlight your experiences, skills, and achievements that demonstrate your capability to contribute to the NSF's mission. Highlight past experiences that demonstrate your ability to succeed (Intellectual Merit), and connect them to your future plans to contribute to the scientific community and to society (Broader Impacts).

- Past: What experiences shaped the your preparation and commitments?
- Present: What questions, capabilities, and goals now organize the your work?
- Future: What will the your contribute to STEM and society?

Construct a Credible Picture of Your Potential

Use this document to present an authentic picture of yourself as a future leader in science and engineering—someone whose goals align with NSF's mission of advancing knowledge and benefiting society. You want the reviewer to see you as a peer who will not only contribute to the scientific community but also work toward the broader societal goals that the NSF is committed to achieving.



Research Plan

2 Pages

What problem does your research address?

- Broader Impacts - Why is it a problem?
- Intellectual Merit - What's your proposed solution?

Introduction: Clarify Your Aim (Don't Assume Readers Care)

Clearly state the research problem your work will address. Convince the reviewers that this is **a problem that needs solving**. Briefly *contextualize* and connect the problem to its broader societal relevance. Why should the NSF and the general public care about this issue? How does addressing this problem align with NSF's goals of benefiting society? Conclude your introduction with a clear statement of your research aim. What do you intend to achieve through your study? This aim should logically follow from the problem you've identified.

Study Overview: Lay Out Your Plans (Demonstrate Your Intellect)

Show that you know the necessary science to succeed at this project by describing why the core idea behind your research has merit. Contextualize: briefly place your proposed solution within the context of existing research. How does your work build on or differ from what's already been done? Clearly state the specific objectives of your study and any hypotheses you plan to test. Make sure these align with your overall aim.

Sub-Section the Research Phases (Demonstrate Feasibility)

Organize the Plan by Aims, Objectives, or Research Phases (including work you've already done). Choose the structure that best represents the logic of the study. For each phase, etc. describe:

- **What you will do:** Outline the key activities, methods, or experiments you will undertake.
- **Why this approach:** Explain why the method is appropriate for the research question and what intellectual advantage it offers.
- **How you will do it:** Explain the techniques, tools, resources, labs, partnerships, professors, or methodologies you will use to carry out each phase.
- **What challenges do you anticipate:** Identify any potential conclusions, challenges, or limitations you foresee and how you plan to address them. What's your contingency plan? Reviewers want to see that you can adapt. Briefly describe how you will evaluate progress at each phase and adjust your approach if needed.
- **What are internal phase deliverables:** Show how you will be producing deliverables along the way such as conference presentations, publications, or tangibles like data sets, algorithms, new methods, training modules, student mentoring outcomes, software for classroom use, or prototypes.

Clarify Impact (Results Use Value)

Outline the results you expect to obtain from your research. What new knowledge or understanding do you anticipate your work will produce? Reiterate how your research outcomes will contribute to societal goals. Will your findings help solve a pressing problem, inform policy, advance technology, or increase public engagement with science? Highlight how your research will advance knowledge in your field. How will your work push the boundaries of what is currently known (close a gap in knowledge) or lead to further scientific inquiry? Explicitly identify what gap in knowledge your work addresses.

Final Tips (Make it Easy for Readers)

Be Specific, but Avoid Jargon: Avoid vague statements (and undefined acronyms) and write for engineers, but non-specialists. Provide concrete details about your research process, expected outcomes, and the broader significance of your work.

Stay Focused: Make your plan easy to follow. Ensure that every section of your research plan ties back to your research aim and the NSF's criteria of Intellectual Merit and Broader Impacts.

Demonstrate Feasibility: Make it clear that your research plan is not only innovative but also feasible within the timeline and resources available to you.

Key Words (+ because)

Use NSF's language purposefully, accurately, and only when you can support it with concrete evidence. Never let a keyword stand alone. Complete the thought with "because." Across the two genres: In the personal statement, use these terms to interpret what your experiences reveal about your preparation and potential. In the research plan, use them to explain the rationale, feasibility, significance, and expected outcomes of the proposed work.

Intellectual Merit

- Advance knowledge and understanding
- Plan and conduct research
- Demonstrated intellectual ability
- Think creatively
- Solve problems
- Interpret and communicate research
- Take initiative
- Original
- Potentially transformative
- Relevant knowledge and experience
- Interdisciplinary

Broader Impacts

- Benefit society
- Specific, desired societal outcomes
- Increase participation in STEM
- Improve STEM education
- Improve education and educator development
- Outreach and mentoring
- Increase public scientific literacy
- Increase public engagement with STEM
- Improve societal well-being
- Develop a globally competitive STEM workforce
- Increase collaboration among academia, industry, and other organizations
- Improve national security
- Increase U.S. economic competitiveness
- Enhance infrastructure for research and education

Personal Qualities

- Leadership
- Initiative
- Preparation
- Curiosity or fascination
- Potential
- Persistence
- Problem-solving
- Independence
- Communication
- Relevant experience

Assessment & Feasibility

- Feasible
- Mechanism to assess success
- Relevant qualifications
- Contingency plan
- Measurable outcomes

Collaboration & Teamwork

- Work independently
- Work as part of a team
- Collaboration
- Interdisciplinary collaboration
- Partnerships
- Collaboration among academia, industry, and other organizations
- Mentoring
- Communicate across audiences or disciplines

Current NSF Priorities: Use Only When Genuinely Relevant

The solicitation says NSF will continue to emphasize high-priority research areas aligned with administration priorities in the FY2027 Budget Request. The budget page identifies these NSF-wide themes: [\[nsf.gov\]](https://www.nsf.gov)

- Artificial intelligence
- Quantum information science
- Advanced materials and manufacturing
- Biotechnology, including neuroscience
- Energy and water security
- STEM workforce and talent development
- Research security
- Research infrastructure
- Innovation

The FY2026–2030 Strategic Plan also emphasizes:

- U.S. leadership in science and technology
- American security
- Economic growth
- Critical and emerging technologies
- World-class research infrastructure
- Secure research environments
- Translation of discoveries into economic and societal impact
- Gold Standard Science
- Efficiency
- Accountability
- Integrity
- Trust in science and research

Use Politically Sensitive Terms with Care

While you might avoid phrases such as:

- Sustainability
- Climate change
- Gender

You can still make an argument for inclusivity. For example:

Instead of:

My broader impacts work focuses on gender equity in engineering.

an application might say:

My broader impacts activities will help reduce barriers that discourage talented students from pursuing engineering degrees.