



Graduate Research Fellowship Program: Writing Your First Grant Application

A workshop facilitated by:

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What is the NSF GRFP?

- **National Science Foundation Graduate Research Fellowship Program**
- Supports **GRADUATE STUDY** leading to **RESEARCH-BASED Master's and Doctoral degrees** in STEM or in STEM education.
- The application will show how the applicant has **DEMONSTRATED POTENTIAL** for significant research achievement in STEM or in STEM education
- **Three years of support** in graduate program (\$34K to student, and \$12K to institution, per year) over up to a 5-year period.
- Honorable mention possible



Who is eligible to apply?

- Senior undergraduates, postbac (not in graduate program), or
- 1st or 2nd year graduate students (apply only once)
- Have completed no more than twelve months of full-time graduate study (or the equivalent)
- US citizen, national, or permanent resident
- Must be **enrolled** in
 - a university, college, or non-profit academic institution of higher education accredited in, and having a campus located in, the United States, its territories, or possessions, or the Commonwealth of Puerto Rico that offers advanced degrees in STEM or STEM education no later than fall of the award year
- Must be accepted in graduate program at time of Fellowship acceptance (May 1 of award year)



What disciplines are eligible?

- STEM or STEM education
 - Not professional health science degree
 - Not clinical or patient-oriented project
 - Not directly health-related
- More details in the application; can ask NSF for guidance
- Application deadlines are due at 5:00 pm local time
- Reference letters are due November 1st, at 5:00 Eastern time

Fields of Study	2018 Deadlines
<i>Life Sciences, Geosciences</i>	October 22 (Monday)
<i>Computer and Information Science and Engineering, Engineering, Materials Research</i>	October 23 (Tuesday)
<i>Psychology, Social Sciences, STEM Education and Learning</i>	October 25 (Thursday)
<i>Chemistry, Mathematical Sciences, Physics and Astronomy</i>	October 26 (Friday)

Application requirements

TWO STATEMENTS

- Personal (up to 3 pages)
 - Relevant Background and Future Goals Statement
- Graduate Research (up to 2 pages)
 - Research plan statement

THREE Letters of Recommendation (2 page limit each)

Official Transcripts



NSF Merit Review Criteria – 1

Reviewers will be asked to evaluate all proposals against two criteria:

- **Intellectual Merit:**

- The Intellectual Merit criterion encompasses the potential to advance knowledge; and

- **Broader Impacts:**

- The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.



NSF Merit Review Criteria

The following elements are considered in the review:

1. What is the potential for the proposed activity to:
 - a. **Advance knowledge and understanding** within its own field or across different fields (**Intellectual Merit**); and
 - b. **Benefit society** or advance desired societal outcomes (**Broader Impacts**)?
2. To what extent do the proposed activities suggest and explore **creative, original, or potentially transformative concepts**?

NSF Merit Review Criteria

3. Is the plan for carrying out the proposed activities **well-reasoned, well-organized**, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How **well qualified** is the individual, team, or organization to conduct the proposed activities?
5. Are there **adequate resources** available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Have a good question and a plan for collecting data to find the answer:

Is the plan for carrying out the proposed activities **well-reasoned, well-organized,** and based on a sound rationale? Does the plan incorporate a mechanism to assess success?



What is the review process?

- Evaluators review ~30 applications at home
- Each application is reviewed and
 - scored as Excellent/Very Good/Good/Fair/Poor for both Intellectual Merit and Broader Impacts
 - Panelists write comments about Intellectual Merits and Broader Impacts and provides a summary statement.
 - Each application receives a numerical ranking that is used to rank all applications
- Each application will be reviewed by three panelists.
- Online, video discussions: Panelists will review the rankings, and will have discussions online to generate final rankings

- The final slate is a RECOMMENDATION to NSF.

Insight on review process?

- Consider “evaluator fatigue” ...
- Well-written, clear statements that “grab” or “excite” the panelist can lead panelist to ADVOCATE for the applicant during discussions
- Help reviewer identify **Intellectual Merit** and **Broader Impacts** criteria through all submitted materials
- Applicant should highlight their “track record” for leadership in activities that support the broader impacts criteria

Broader Impacts Criteria – societally relevant outcomes

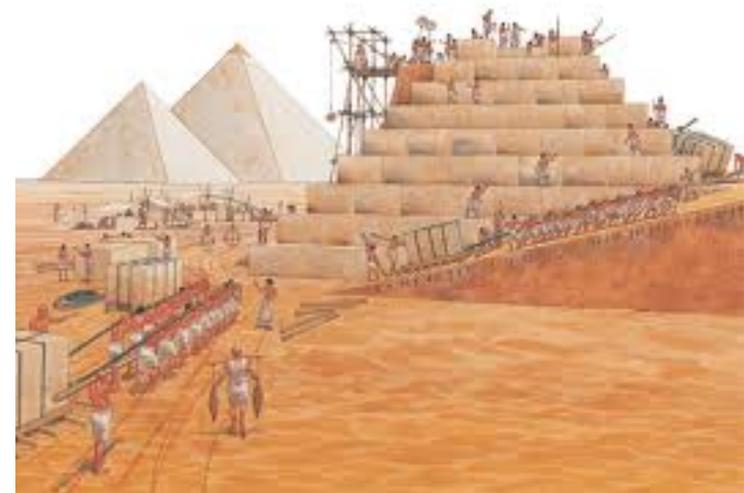
- full participation of women, persons with disabilities, and underrepresented minorities in STEM
- improved STEM education and educator development at any level
- increased public scientific literacy and public engagement with science and technology
- improved well-being of individuals in society
- development of a diverse, globally competitive STEM workforce
- increased partnerships between academia, industry, and others
- improved national security
- increased economic competitiveness of the US
- and enhanced infrastructure for research and education.



Project Management*

- How to make things happen
- Making good decisions
- Figuring out what is required
- Ideas and what to do with them
- How not to annoy people
- Leadership and trust
- Making deadlines
- What to do when things go wrong

*from Scott Berkun, ***Making Things Happen: Mastering Project Management***



Research on adult learning indicates four essential principles of success:

1. active involvement (doing the work),
2. effective use of organization's resources,
3. social interaction/collaboration, &
4. self-reflection (or self-assessment) – see three points above!

Project: Discipline Based Writing Assignment(s)

The assignment planning and tracking tool that you can use is based on an project development plan (PDP).

Writing down the plan is a forcing function-with key features:

- The work (requirements)
- The skills needed
- The support required
- The time line

Writing Assignment Development Plan

Learning Goals	Deadline	Specific Skills needed	Strategies needed to build skills
<p>Learn about a biochemical topic in depth, understand the data that supports the current understanding of that topic.</p> <p>Develop writing skills to produce a high quality literature review of your topic that will be published on the web.</p>	May 15	<ul style="list-style-type: none">• Find Relevant literature• Understand the experiments that generated the data• Critically analyze the data• Effectively communicate understanding in writing	<ul style="list-style-type: none">• Enlist a librarian to give a seminar for finding relevant literature.• Students meet with instructor to discuss experiments/data that are confusing.• Students attend class and complete in class peer review exercises• Students and faculty meet deadlines.





Breaking up is not hard to do....

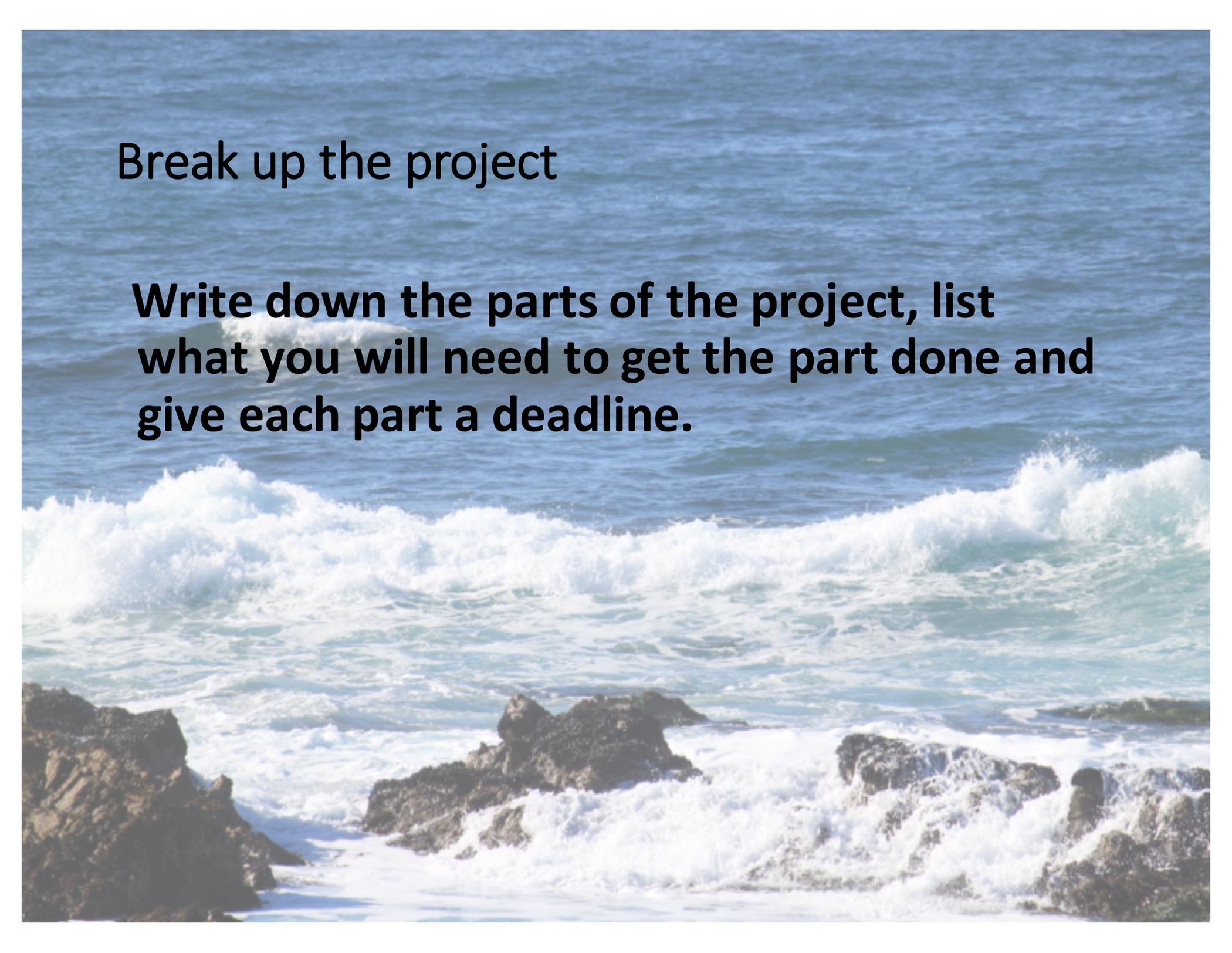
Assignment	Points	Due date
Topic Paper	10	Feb 13
Describe a Figure	10	Feb 20
List of References	10	Feb 27
Summary of One Reference	25	March 6
Describe a Figure	10	March 13
Annotated Bibliography	25	March 20
Organizational Map	20	March 27
First Draft	50	April 4
Second Draft	100	April 24
Peer Reviews	50	May 8
Final (pdf) version	20	May 22

Sit back, relax and enjoy the view!



Strategies for your next big writing assignment.

- Break it up into manageable steps, write down reasonable deadlines.
 - Reasonable for you to complete,
 - Reasonable for you get support/feedback before it is due.
- Assess your skills/information—what do you need before you can start and complete each step?
- Start the project and stay on course.



Break up the project

Write down the parts of the project, list what you will need to get the part done and give each part a deadline.

Stream of Thoughts Writing

- In this exercise, write down everything you can think of for each question.
- You only have 15 min—so the order, the flow the organization, grammar etc. do not matter. Just write!

Hunt for the Main Ideas

1. Circle the main ideas
2. Look at your main ideas and categorize them as either Intellectual Merit or Broader Impacts or Both. Label each circle with a number, with the most important getting the highest number.
3. Write down your most important ideas on Sticky notes
4. Place your sticky notes on the large white papers at your table.
5. Look at the papers at other tables.

Thank you

Dr. Susan Baxter, Director of CSUPERB

Dr. Terry McGlynn, CSU Dominguez hills

Dr. Sally Pasion, San Francisco State

