Advice on Applying to NSF– Amy Gantt, Director of Proposal Development

Templates:
We have a number of templates and resources on our website, located at http://grantwriting.tufts.edu/?pid=15&c=24

The templates most relevant to an NSF application are the budget justification template, the resources, and the biosketch templates. The postdoc mentoring plan template is only to be included if you budget for support for a postdoc.

Additionally, you should contact one of the Tisch librarians to help with the Data Management Plan. Their website is here: http://researchguides.library.tufts.edu/datamanagement, and Regina Raboin can point you to the person who can best help you if your proposal doesn't fit one of the categories they have listed.

Content:
In terms of content, the two most important review criteria for NSF (the two that are required or the application will be non-responsive) are Intellectual Merit and Broader Impacts. Both of these have to be specifically addressed in the summary (1-page equivalent of the NIH abstract) with subheadings denoting each, and they should also be addressed in specific sections within the 15-page narrative. From the Grant Proposal Guide (GPG):

What is the intellectual merit of the proposed activity?
How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of prior work.) To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

and

What are the broader impacts of the proposed activity?
How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

The GPG, while long and dense, does do a good job of talking about the review criteria and the "culture" of NSF. Also, it's a good idea to email the program officer affiliated with the program you want to apply to, and send them a brief summary of your idea to make sure it's a good fit. The NSF program officers tend to be very helpful, though it does vary somewhat from program to program.

General Outline for an NSF Proposal
1. Introduction and Goals (approx. 1 page)
This section is the equivalent to the Specific Aims page for an NIH grant. The goals should be measurable and should tie directly to your evaluation of the program. NSF tends to really stress the integration of research and education, and that should also be reflected in your goals.

2. Intellectual Merit (approx. 1/2 a page)
See above.

3. Broader Impacts (approx. 1/2 a page)
See above.
4. Background (approx. 2-3 pages)
This section should do more or less what the background section in the old NIH format did, though more condensed. Include any relevant preliminary data or similar programs that you have been involved with here.

5. Methods/Project Plan (approx. 2 pages per goal)

6. Timeline (approx. 1/4-1/2 page)

7. Evaluation Plan (approx. 1/2-1 page)
This is most relevant to infrastructure-type projects or educational programs, and it's typically required for these sorts of grants. Even if the RFA doesn't specifically address an evaluation plan, it's a good idea to include one that demonstrates the expected outcomes and how the program's ability to satisfy the goals will be measured.

8. Dissemination Plan (approx. 1/2 page)
In some cases, the dissemination plan can be a part of the Broader Impacts section, in which case, that section would be longer. Here, you would discuss how you plan to publicize your results, including any innovative ways that your results are tied to educating students and/or the public. For grants focused on education, some discussion of the generalizability of the program, or how it could be adapted to other programs/institutions/etc. is usually expected.

9. Management Plan (approx. 1/2-1 page)
This is especially important for multi-investigator grants, or grants with subcontracts, but for an education/curriculum grant, this is also important.

10. Institutional Environment (approx. 1/2 page)
This shouldn't be too repetitious from the Resources page (that's a separate upload), but particularly if your program depends upon collaborators, special equipment, or the culture of facilitating interdisciplinary work/undergraduate research/etc. then talking about how Tufts provides an ideal environment will strengthen the proposal.

11. Previous NSF-Funded Research (approx. 1/2-1 page)
This is a required section for anyone who has had NSF research in the past. If you don't have NSF-funded research, I'd recommend using additional space in the Background section to talk about "Previous Funded Research" and use it to discuss your previous grants and how they're relevant to the proposed program.

Please Note: It's important to remember that these headers are quite general, and there's no "right" order for them in most cases. If however, the RFA has particular topics or subheadings that they recommend, I strongly suggest that you follow that language and order as exactly as you can to make it easier for reviewers. The page allocations are likewise very general, and it's much more important to tell a good story and demonstrate how your research and education goals will advance the science and have an impact beyond the academic world.