

Key things to think about early (and often!) in the application process: Ideally begin this process 2-3 months before the NIH deadline

- Check your **NIH deadlines** (April 8, Aug 8, Dec 8) and be aware of **your school's internal deadline** (usually 2 weeks before the NIH one):
<https://grants.nih.gov/grants/how-to-apply-application-guide/due-dates-and-submission-policies/due-dates.htm>
- Note **any changes to the forms of the current application**. As of January 2018, there are some new rules. Most apply to projects involving **human subjects**. See page 9 of the NIH guidelines for specifics:
<https://grants.nih.gov/grants/how-to-apply-application-guide/forms-e/fellowship-forms-e.pdf>
- Consider who you want to **ask for Reference Letters**: e.g. Thesis committee members, MSTP Director, Training Grant Faculty, Grad Group Director. Also think about whether it will be helpful to get a **Letter of Support from Collaborators** (more details below).
- **Well in advance of any deadlines**, ask your PI (and co-PIs!) for their **Sponsor Statements** and their **Biosketch** (more details below).
- **Request your undergrad transcripts** if you don't have your grades logged somewhere. For your NIH Biosketch, you will need to input the titles and grades earned of all **scientific and professional courses (Calculus, Biochemistry, Statistics, etc.)** you took from undergrad - present, as well as the grading scales for those courses. * This is a new change to the forms...previously you needed to input *all grades*. *See more details below*.
- Check out your **MSTP website's Individual Fellowships page** for lots of additional tips and resources.
- **Find a student mentor** who has somewhat recently submitted an F30/31 and is willing to share their F30/31 document with you to use as a guide.
 - Ask around your lab!
 - Ask your MD/PhD office for a list of students who recently submitted an NIH fellowship.
 - It can be helpful to try to pick a person who wrote a grant for the same institute you are apply to. Email your fellowship coordinator to ask for a copy of the grant.
 - It can be very helpful to use the **Table of Contents** from your mentor's grant as a **checklist** to keep track of all the forms you will need to complete.
 - ***** NIH guidelines change** so be sure to download the F-award NIH guidelines and Program Announcement and cross-reference your student's grant with the current guideline! (**details below, bolded in red**).
- **Contact your fellowship coordinators**, i.e. Marianne Altland (altland@pennmedicine.upenn.edu) and Francia Portacio (francia.portacio@pennmedicine.upenn.edu), and let them know you will be applying for a F30/31 to make sure you have the correct information and MD-PhD documents.

Now to the nitty gritty details of applying....

I. Figure out which grant and what NIH institute to apply to:

A. Decide between F30 (specifically for MD/PhDs) vs F31 (for all PhDs); these are types of grant “mechanisms”:

To start, if you are going to apply for an F30, remember that our MSTP is NIH-funded. This affects your eligibility to apply to certain NIH Institutes. Google search “**NRSA F30 Program Announcement**”. You want the one that is specific for institutions **WITH** (<https://grants.nih.gov/grants/guide/pa-files/PA-19-191.html>) established **MD/PhD** training programs. You will see listed the NIH institutes that fund MD/PhD F30 applications. If the one you want isn’t listed, look to see if they offer the F31.

Note: Not all NIH Institutes accept F30s from MD/PhDs. That is OK. You may then opt for the F31 if the NIH Institute most relevant to your project does not support F30s. For example, the NINDS (Institute for Neurological Sciences) does not support F30s but does support F31s. You can check this out by looking at the Funding Opportunity Announcements (<https://grants.nih.gov/grants/guide/pa-files/PA-19-195.html>). **F31s are available to MD/PhDs too! It is basically the same application. Apply for an F31 if the NIH institute most relevant for your project does not support F30 applications.*

Note: If you qualify as an under-represented trainee in science/medicine, the F31-Diversity grant mechanism may be a good fit and these **usually have better paylines. There is no Diversity option for F30s, so as an underrepresented MD/PhD student this may be helpful. You should talk to your program officer about this option (<https://grants.nih.gov/grants/guide/pa-files/PA-19-196.html>)*

Confirm your eligibility FIRST with your fellowship coordinator!

- **Check** that you are not **too old** to apply for your deadline (for F30s your initial application needs to **be by the end of your 4th year of graduate school/48 months from your matriculation**).
- For the F31 and F31 Diversity, this 48-month time limit does not apply. Instead, you have “**up to six years of support for training leading to the combined MD/PhD degree or another, combined dual-doctoral degree in the biomedical, behavioral, or clinical sciences.**”
- Double check the **amount of time left of eligible** NIH funding you have left. You need to know this to write your research proposal accordingly for that much time. The amount of time left for eligible NRSA F funding can be affected by the amount of time you have been on an MSTP Training grant at your institution and/or if you are on an *internal institutional* Training Grant funded by the NIH during your PhD (ex. Genetics, Developmental Biology Training Grant). Together, these factors determine the amount of time you are allowed to request funding from the NIH, which affect your Training Plan/Goals and the feasibility to complete your research project in this time, **so talk to your grants coordinator and PO to figure this out**. Scale your goals and science accordingly *for only the time you are eligible* to receive funding!
 - *For example, if you are a 4th year MSTP student applying for F31, you have already received 2 years of funding from Penn’s MSTP training grant. If you have been on a departmental training grant for your first two years of your PhD, then your total “used funding” is 4 years. Therefore you have two years of funding left if you are applying for F31. (And because you are a 4th year (48 months after starting med school) you may be ineligible for the F30).*

*** Confirm the Program Announcement (PA) number with your fellowship coordinator . These numbers change with each grant cycle. Make sure this number has not expired and you are looking at the most recent announcement. That PA number is important for your letter-writers to match your letter with your final submitted application.**

*** The Program Announcement (PA) is the instruction manual for your application! Make sure to reference it throughout your application.**

B. How do I decide which NIH Institute to apply to? NIH structure 101: Within each NIH institute are Divisions, and each Division has multiple branches. You will find many branches titled with key scientific phrases that focus on a particular aspect of research. I promise at least one of them will jive with your project. This is the NIH Division (and therefore, institute) for you. To find this, go to your potential Institute's homepage > "Grants and Funding" > "Contacts for (insert Institute's Funding Information)" > "Research Areas" > "Find a Program Officer". A PDF with all of the branches and contact information for the program officer of that branch will pop up and be your best friend.

**Note: Maximize your chances of success by tailoring your research to your Division's Research Priorities. You can also state how your research aligns with these priorities in your Training Goals or Biosketch page. You can find this information on that Division's homepage.*

1. Come up with a list of 2-3 Institutes and branches that fit your project.
2. Check funding success rates for each institute: *see excel file:* <https://report.nih.gov/FileLink.aspx?rid=550>
3. Arrange a phone call with that program officer (PO) to tell them about your project and get their first hand opinion to see if your proposal is a good fit. Email them first to set it up with a good draft of your Specific Aims attached. Don't be afraid of this! POs can be really nice and supportive. *If they do not respond to your email, just call them. This is their job, so just call.*
4. Talk to your PI about your institute options after doing your research. Look at all of the factors together (payline, success rate, PO opinion, which institute may know your PI better). Then **email your fellowship coordinator** and inform him/her you intend to apply for the upcoming grant cycle and which mechanism (F30 or F31 or F31-Diversity) and which institute. Division/branch is not important here.

II. Familiarize yourself with the components of the application:

Penn has its own PDF compiler for grant submission: familiarize yourself with it.

1. Complete Set-Up Questions (your own info and a lot of admin info already inputted for you).
2. Click through the different subtitles so you know which parts of the application go where
3. Write your documents in Word (as separate entities, according to the way your institution's research office wants you to break it down). Then **convert them to PDFs** on your own and upload those. If you are about to submit your final application and you uploaded Word docs, some application compilers will convert them to PDFs for you before it compiles everything into one PDF. This can mess up your formatting, so do it yourself for each document and upload that to your internal system if your school has one.
4. *Fellowship coordinators are extraordinarily helpful with any and all grant-related questions! Note: He/She may take a day or two to respond since he/she is coordinating all graduate student grants, so plan for that.

III. Complete your application:

Using your acquired student grant as reference, download the F-award guideline PDF and your Program Announcement and cross-reference your student's grant with the guidelines, as the student grants may be outdated (NIH guidelines change slightly across the years).

***** SF424 (R&R) Fellowship Application Guide (aka the F-award guideline PDF): select the appropriate PDF link for F Fellowships Instructions <https://grants.nih.gov/grants/how-to-apply-application-guide.html> (PDF also linked above) *****

***** The Program Announcement (PA) for your grant is your instruction manual for your application! The PA references the generic instructions in the SF424 (R&R) along with any modifications you should make for your particular F award. *****

For most projects, Pages F-60-80 of the guideline PDF are the most helpful. Look up what reviewers are looking for in each section and make sure to review page restrictions and formatting:

<https://grants.nih.gov/grants/how-to-apply-application-guide/format-and-write/page-limits.htm> ;

<https://grants.nih.gov/grants/how-to-apply-application-guide/format-and-write/format-attachments.htm#formatpages> ;

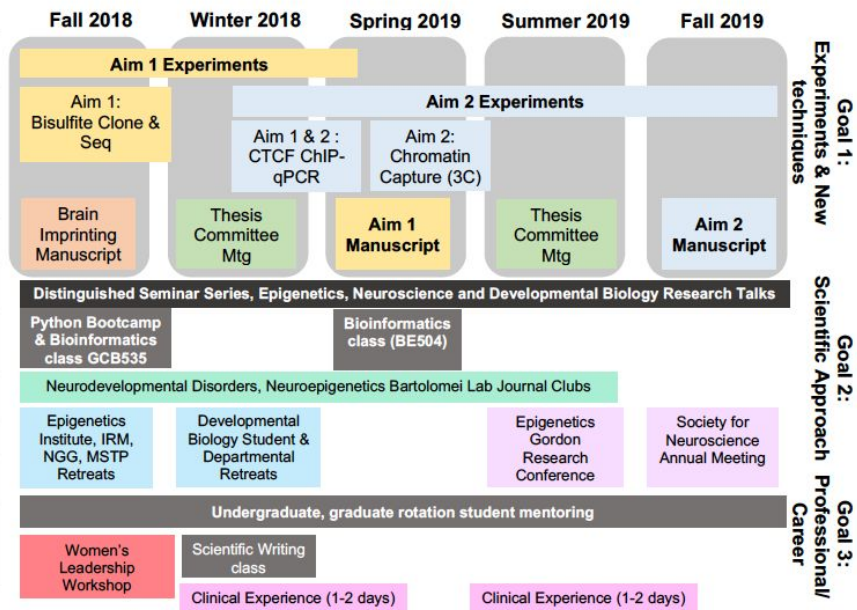
Size 11 Arial font with 0.5 inch margins is expected. If you put figures in your application, make sure they do not creep past the 0.5 inch margin! They will get cut off in the final application!

A. You can think of the application in terms of **three, 6-page chunks**:

1. **Chunk 1: Research Strategy:** This is what we tend to focus most on as students. For most, it is basically their prelim: aims/methods/expected results/pitfalls/preliminary data
2. **Chunk 2: Applicant's Background and Goals for Fellowship Training:** arguably MORE important than the Research Strategy. Try not to rush this! Sit down and figure out the extra stuff you want to accomplish in your PhD and lay it out in a thoughtful, organized and meaningful way. Give yourself adequate time. The 3 things that go into this document are:
 - a. **Doctoral Dissertation and Other Research Experiences:** Undergraduate/gap year/lab rotation experiences/short summary of current thesis research (nice short blurbs organized by year)
 - b. **Training Goals:** Here is the biggie - what do you hope to accomplish if awarded the money? Be specific and relate it back to your project and how this short-term goal will help you achieve your main goal of becoming a physician-scientist
 1. **Research Goals:**
 - a. Workshops/mini-courses/conferences: e.g. RNA-seq or proteomics course/workshop, Keystone Symposia, Cold Spring Harbor courses/meetings.
 - b. Learn something specific your lab doesn't know very well but important for your project. How? Explore courses offered all over the country/world/at your school.
 2. **Professional Goals:**
 - a. Leadership training: e.g. mentoring undergrads/new grad students, leadership course
 - b. Participating in student groups/working as part of a team: e.g. Women in science/underrepresented trainees in science
 - c. Teaching: TAing/tutoring/mentoring
 - d. Writing: Grad student services, prelim prep course; other writing courses
 3. **Clinical Goals:**
 - a. Clinical Connections/shadowing
 - b. Grand Rounds/monthly event series
 - c. Community clinics
 - c. **Activities Planned Under this Award:** organize your training goals by year (the years you have left in the program, the ones that will fund you). Basically a timeline of your Training Goals broken down by year. If you like, make a timeline figure or a table outlining this. Make sure to put the percentage of time you will spend doing each activity. The more specific, the better! See example below:

Timeline:

Activities Planned Under Award	
Activities	Percent Time Spent Yrs. 6 - 7
Research	80
New Techniques	5
Manuscript Preparation	5
Coursework (Bioinformatics, Scientific Writing)	3
Conferences & Meetings	2
Journal Clubs	2
Clinical Integration	2
Professional (Teaching, Leadership)	1



3. Chunk 3: NIH Biosketch

- Your biosketch. Stuff that goes into the NIH Biosketch:
 - Personal Statement
 - CV stuff: positions/honors/publications
 - What are your scientific contributions? Short summary of your main accomplishments in your fields of study (succinctly describe your papers'/posters' research goals/findings/how it furthered the field)
 - Grades: undergrad/post-bac, med school, grad school. Break out your undergrad transcripts! Also need to describe the grading system for your grades in each phase, so be prepared for that.

***Note:** There is a template in the F-award handbook (<https://grants.nih.gov/grants/forms/biosketch.htm>)

***Note:** Your PI and Collaborators **ALSO** need to fill out NIH Biosketches, i.e. essentially their CV. Give them several weeks notice for this as they might need to update their last version! Check that their form is up to date (top right corner date coverage)! There is also a template for them available online.

B. Letters of recommendation: 3-5 people.

- Make sure to ask for a "STRONG" letter of support who knows you well! Weak letter writers need not be involved here. If possible, it can be helpful to have at least one letter from a DIFFERENT institution, outside of your own. Keep in mind it is also beneficial to have a senior, well-known scientist as one of your letter writers.
- There are instructions available for letter writers online (<https://grants.nih.gov/grants/how-to-apply-application-guide/submission-process/reference-letters.htm>).
- Give these people 4 weeks to write and remind them at 2 weeks. Be prepared to offer to write a draft of it for them if you haven't been in touch in a while or if they are busy. Giving them your Specific Aims, Abstract, CV and your Training Goals page is also helpful for them to write you a good letter. These people CANNOT be your PI (he/she is already writing you a "letter" embedded in their "Sponsor Statements")
- Letters of Support from a Collaborator:** Especially for techniques that challenging or outside the expertise of your lab, it can be helpful to get Letters of Support from Collaborators (from your school or another institution) stating their expertise and willingness to assist with particular aspects of your project. It is often easiest if you draft the short letter of support and send it to your collaborator to put on letterhead and sign. You will upload all of your Letters of Support as a *single PDF* in the "Letters of

Support from Collaborators, Contributors, and Consultants” section of the application. You will also need to submit NIH Biosketches for any collaborators so make sure to ask for one early!

C. The rest/loose ends are important! *I actually like to do these first because they are usually a page or two and easy to knock out in a couple of afternoons. They are easy things to cross off your list and make you feel accomplished!*

1. Cover letter: Uploaded into “SF424” section. State the title of your proposal and the grant mechanism you are applying for. Ask your student mentor to see an example if it was not included in the pdf you are using as a guide. Must contain a list of referees (including name, departmental affiliation, and institution. See Page F-29 of the guide for more details.
 - a. Used to also include the Institute and name of Program Officer; however, this is now a separate form. On your “Setup Questions” page, you must check the box indicating that you would like to fill out the “PHS Assignment Request Form”
2. Performance Sites: Ask your fellowship coordinator for help with this.
3. Other Project Info
 - a. For Vertebrate Animal work see page F-33-35; for human work see page F-31-33): there are specific documents for each model. Get the protocol numbers/renewal dates from your lab manager or PI, and a copy of their last grant submission form pertaining to animals or humans that you can tailor it to your project.
 - b. Project Summary/Abstract: your abstract. Check the guidelines (needs to be a maximum amount of **30** lines, etc.
(<https://grants.nih.gov/grants/how-to-apply-application-guide/format-and-write/page-limits.htm>)
 - c. Project Narrative: 3 sentence summary of the relevance of your work to public health
 - d. Bibliography & References Cited: your bibliography
 - e. Resources: *get these templates from your PI/post-doc/older grad student*
 1. Facilities and Other Resources
 2. Equipment
 - f. Other Attachments: If you are applying for an F31-Diversity, you need to ask an administrator at your institute to generate a letter recognizing you as an under-represented trainee in science and medicine and upload this letter here.
3. Summary Budget: Ask your fellowship coordinator for help with this.
4. **S2S forms**: “The meat” of your application. Upload the following here, separately as individual documents (a-k are found in “PHS_Fellowship_Supplemental”; I is its own form):
 - a. Background and Training Goals
 - b. Specific Aims
 - c. Research Strategy
 - d. Respective Contributions: A couple lines of you saying you did the science and writing work
 - e. Selection of Sponsor and Institution: A one-page pump up letter for why you chose your school and your mentor. Be specific and detailed about each.
 - f. RCR training: Ask your fellowship coordinator for a template. Just add at the end when you completed yours over the last few years and who your facilitators were, if you can remember!
 - g. Sponsor and Co-Sponsor Statements:
Basically a letter of recommendation for you from your PI juxtaposed with their funding info and past trainee record. If your PI has never graduated a PhD graduate student before they will likely end up needing a co-sponsor who is more senior. Give them 3-4 weeks advanced notice to write this, and even offer to write the “letter of rec/what are you up to” portions of this if they are busy. See pages F64-66 of guidelines. If they’ve never written a Sponsor Letter before, suggest that they ask a fellow PI for an example they can use. This includes:
 1. Summary of your Training Plan, Environment & Research Facilities, how they will help your personal and project’s growth
 2. Applicant’s Qualifications and Potential for a Research Career
 - h. Description of Institutional Environment and Commitment to Training: This is a letter your MSTP writes for you that basically says why your institution is awesome for training. It states your year, graduate group, thesis committee members, the important training stuff. You don’t

have to worry about much else – Amy will send it to you to review before she submits the final version for upload.

- i. Other Research Training Plan documents: Talk to your lab for templates. Confirm these templates with
 1. Pages F-71-72 for vertebrate animals
 2. Page F-72 for select agents
 3. Used to be documents for humans but this is now its own separate section under “PHS Human Subjects and Clinical Trials Information”
 - j. Resource sharing plan: Talk to your PI/bioinformaticist/older labmates for this. Includes websites for submitting sequencing data for others to see/mouse models, etc. Confirm the template with page F-73-74.
 - k. Make sure your field of study/degree/expected graduation date are correct.
 - l. Your Assignment Request form, where you can request a specific NIH Institute and/or Study Section. See F-118-120.
5. Personnel:
- a. Your biosketch (F-49-53).
 - b. Your PI’s biosketch: *If this is their first time writing one of these, give them Pages F-49-56 to refer to (hopefully shouldn’t be!).
 - c. Your Collaborator’s Biosketches (F-57).
6. Approvals: Your animal/human protocol numbers, start/expiration dates. You may not be required to provide the protocols numbers at the time of submission, but you will be required to have approved protocols before your grant is funded.
7. Human Subjects/CT: As with vertebrate animals, talk to your lab for templates and confirm them with F-81-117.

Final steps and tips:

- Try to upload your documents in PDF form as you go. It will be less daunting at the end. Do the easy forms first and get them out of the way! e.g. Cover letter, facilities, resources, etc.
- Be aware of **your school’s internal deadline! This is different from the NIH deadline** (~2 weeks earlier to make sure things get approved by the ~30 people in research affairs). **Some schools will also give you a final hard deadline 2 days before the NIH submission date.** Be prepared for that and how your school wants it prepared.
- You will then be able to **review your compiled PDF online in your ERA account** on the NIH eRA Commons website (<https://public.era.nih.gov/commons>). If there is something wrong with formatting or you accidentally uploaded the wrong file, you have ~24-36 hours to change it (there is an email with steps that gets sent out). Just let your research operations officer know you want to change your final version, and someone will unlock your NIH account. You will have to upload your new document and compile the whole thing again, and then let your fellowship coordinator know it is ready for re-submission.
- Celebrate! Keep **checking your status on eRA Commons** for notifications in your application and your intended grant review date (but be patient! Grant reviews and payline decisions take a long time...). Once you are assigned a study section, make sure it is a good fit. Review the roster. Contact your Senior Research Official (not the same thing as a Program Officer - this person helps organize the study section) if you think there are any mistakes.