Postdoc Academic Chat #1

Developing Persuasive Arguments for the Resources You Need as a New Faculty Member

Wednesday, September 12, 2018

READINGS

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1. Writing a Research Plan

By Jim Austin, Editor, Science Careers, Science Magazine, AAA.org, July 26, 2002

Hiring committees desperately want to avoid making a serious mistake by investing institutional and intellectual capital in the wrong person. The aim of your research plan, then, as of the rest of your application, is to assure the hiring committee that life with you will be pain-free.

Nearly every applicant for a tenure-track faculty job is expected to include a research plan. Exceptions are rare. Just as rare are programs designed to help doctoral students and postdocs learn how to create a research plan. Which is too bad: Writing an effective research plan is tricky. And until now, there was little advice to be found.

Okay, so that isn't exactly true: It isn't hard to find advice. Opinions, after all, are not in short supply in the academy. What *is* hard is finding advice you can rely on. We can help.

Why? Because we talked to a lot of people. We interviewed and corresponded with faculty and research scientists who have served on hiring committees. All of our sources have experience; some of our sources have a lot of experience. We considered everything, filtered out the muck, and distilled it all down to a general strategy and a few simple principles, with a few variations on the theme thrown in for good measure. Our aim is to do some of your homework for you, to make sure that you'll never have to read more than you have time for.

Furthermore, we'll keep talking to people about this topic, and we'll incorporate new responses into this document as we receive them. As a consequence this piece, like the other tools in the tool kit, will remain fresh and useful when other resources have become dated and useless.

So, onward and upward ...

What's the purpose of a research plan?

It depends on who's asking the question, and who's answering it. From your immediate point of view, the purpose of a research plan is to help get you hired.

The research plan, however, serves another, very important function: It contributes to your development as a scientist. Your research plan is a map for your career as a research science professional. As will become apparent later in this document, one of the functions of a research plan is to demonstrate your intellectual vision and aspirations. It's also an opportunity to begin to demonstrate the creative and independent thinking required of a successful scientist.

Not yet on the job market? Just starting out as a postdoc? A research plan isn't just for demonstrating; it's also for honing and refining. It's possible to function quite well as a postdoc or grad student while giving little thought to your future. Writing a research plan casts your gaze forward and prompts you to begin planning for when you have your own laboratory. And if you've already started to think about your own lab, it will help you to refine your plans. So take a stab at writing a research plan, even if you don't expect to be on the job market for a while. Think of it as a rough draft, a fantasy trip for your career.

But never mind about that. Most of you are trying to get hired. In that case what matters is, what is the committee looking for?

The answer: relief from anxiety.

Hiring committees desperately want to avoid making a serious mistake by investing institutional and intellectual capital in the wrong person. The aim of your research plan, then, as of the rest of your application, is to assure the hiring committee that life with you will be pain-free.

How do you do this? Provide the committee a compelling, reassuring, believable image of what their life will be like when you are working down the hall.

Tell them a story--a believable, credible story--about what your lab will be like 5 years from now: well-funded, vibrant, productive, pursuing a valuable, ambitious but realistic research agenda that meshes well with the department's mission and with the other research going on in the department.

Please don't misunderstand: You shouldn't *tell* them this ("in 5 years my lab will be vibrant, productive, and well-funded ..."); rather, you need to lead them to believe it by describing a research agenda that persuades them that you will succeed. There are two parts to this: You have to tell a good story, and you have to make them believe it. If the story isn't compelling you won't get hired, and if they can't quite imagine it becoming reality, you won't get hired.

How do I tell a good story?

First, choose an important subject. If the research you plan is not compelling, no rhetorical skill will make it compelling to a committee of smart scientists. If the research you propose is not manifestly, obviously important, if you don't know *why* it's important, or if you can't convey its importance effectively, convincing the committee to hire you won't be easy. Note that there are two issues here: believing in the importance of your own work, and persuading *others* that your work is important.

If *you* don't think the work you'll be doing is important, your best bet is to change fields. The goal of science may be to uncover truth, but uncovering objective truth is a very difficult thing to do, and doing it requires passion. If you aren't passionate about your work, your best bet is to find work about which you can be passionate. It isn't easy to change gears midcourse, but getting yourself into an important area of research will be well worth the effort in the long term--to your hirability, to your fundability, to your tenurability, and also to your career satisfaction. Do another postdoc if you must.

Passion for your work is a necessary, but insufficient, condition for capturing the attention of hiring committees. After all, some people are passionate about, um, peculiar things. To convince the committee to hire you, you must convince them that your passion is justified and that they will benefit from investing in your passion--that is, that your work is important.

Be specific. Curing cancer is *not* a suitable goal for one individual's research plan--exciting, yes, but much too big to be believable. Inhibiting tumor growth? That's better, says one of our respondents--especially when that general goal is supported by more specific strategies. "[That kind of research] can travel down several different mechanistic routes," this respondent says, "i.e., angiogenesis, breakdown of extracellular matrix, gene activation, induction of molecules involved--it can use different models--implanting tumors, using different tumor models, in vivo, in vitro, etc." The combination of a manifestly important goal with manifestly interesting, feasible approaches is the foundation of the research plan.

Being specific is not the same thing as including loads of detail. Being specific means including only as much detail as the job requires--not more. "Vague generalities are the sign of a vague mind," says one source. "This means that the proposal must walk the fine line of enough detail to show the reader that the candidate knows what they are talking about, but not too much detail that it confuses or bores the search committee."

Keep it short and focus on the major themes. "Brevity and clarity are the most important elements," wrote another respondent, expressing a sentiment shared by everyone. "Clear, concise writing ... is a plus," said another. "Superfluous details are not just unnecessary, they are often the hallmark of a poor plan. The specific aims must be clear and succinct." Identify your goals, state why those goals are important, define your approach to achieving those goals, and indicate the kinds of evidence that will validate your approach. Oh, and do it clearly and succinctly.

"If you were sitting for 4 hours reading such proposals, what would you look for? Clear and to the point wins every time in this arena."

Effective communication requires anticipating readers' needs, giving them exactly the information they need just when they need it. Constructing a research plan along these lines strengthens your application in three ways: You avoid alienating the committee by boring them; you tell the committee precisely what you intend to do; and you show that you have a subtle mind and a deep knowledge of your field.

Can't do this yet? No hurry--consider spending another year as a postdoc, and study hard.

Be serious about writing. Writes one respondent: "If the proposal confuses the reader in almost any way, it is simply tossed out. I strongly recommend that the candidate have colleagues pre-review the proposal and make sure the English is clear and ideas explained so that a variety of people in the general area can understand what is being proposed and the importance of the work."

If your writing skills are weak, it might be time to strengthen them. Or hire an editor. And by all means have several people--preferably senior colleagues who have served on hiring committees--critique your research plan.

But there were two parts to this, remember? You not only have to tell a good story--you also have to make it seem real, to make them expect it to come true.

How do I make my research plan seem real?

Have a solid, well-considered, realistic plan. If you want to get a job at an institution that takes its research seriously, you'll have to convince your future colleagues that you've gotten past the young, impressionable phase, where every idea glitters with promise despite the fact that it isn't feasible and isn't likely to work. Show the committee that, although your high ideals remain intact, your years of graduate and postdoctoral study have helped you to know the difference between good ideas and good intentions. In the words of one scholar, "You can tell a 'building castles in the sky' research plan. They are not built on solid data and go to the very bottom of the pool." Indeed.

Include preliminary data. Preliminary data offer the most convincing argument for the viability of your research plan. If you have them, use them--positive results will be of interest and persuasive to hiring committee members. The nature of your preliminary data and findings will vary--some will have much to share, others might be forced to share *very* preliminary data.

Nothing grounds your hopes and dreams in the real world like good, solid data. Your plan might sound exciting, but will it work? It's one thing to make it sound good; if you can *show* that you've already taken the first, tentative but successful steps of that long journey, reaching your destination will seem a lot less like a pipe dream. One of my sources was unequivocal on this point: "Does the research question build on the preliminary data the person has generated? No preliminary data equals no research question." Which also equals no job offer at that institution.

It is important to remember that just as institutions vary widely in their practices, so too do the expectations of hiring committees. Do your homework: Learn about the culture of the department and the experiences of previous faculty hires.

Include redundant approaches. If you want to succeed as a scientist you have to be resourceful. You can't be a one-trick pony. And the focus must be on the science--on the problem you aim to solve--not on the scientist or a particular approach. No matter how knowledgeable you are, no matter how well considered your research plan, you can't predict the future. And if you haven't done the work yet, you don't know how it will turn out. That means that any one approach you specify might not work, even if it seems compelling. So if you want to convince the committee that you will succeed, give them not one, but two, or even three, compelling approaches, all of which have a good chance of success.

How do I demonstrate my independence?

Different institutions expect you to be at different stages of your career. Think of it as a continuum: At one end sit well-established researchers with strong research records, many first-author (or last-author) publications, and their own research funding. At the other end sit rosy-cheeked, freshly minted Ph.D.s full of enthusiasm, promise, and ideas, but with little yet to show for it. Most candidates for entry-level tenure-track faculty jobs at institutions that require research (that is, most of the people who write research plans for job applications) are somewhere in the middle. You probably won't get hired anywhere if you aren't well prepared to start a productive research program at a scale appropriate for the institution.

But these days some institutions and departments are looking for more than that. Increasingly, especially in the biomedical field, universities are hiring established researchers, even at the "entry" (assistant professor) level. How is this possible? These days some pretenure-track scientists are setting up their own research programs. Increasingly, senior postdocs are being promoted to research associate or research faculty positions during what the GrantDoctor calls the "postpostdoc" phase of their research career. In that position, they write research grants in their own names and their host institutions sponsor them. Very often these folks have an R01 before they begin applying for a tenure-track job.

The key objective if you're applying to one of these institutions is securing research grants: If you have a grant in your own name, you'll be a strong candidate; if you don't have your own grant, you are less competitive. It's a cynical cop out on the institution's part, really, taking a pass on the difficult job of evaluating talent and capitulating to the reality of big-time biomedical research: It's all about the cash. Still, increasingly it's a fact of life. But how do you know if the institution to which you hope to apply is one of these? Ask.

Those scientists and institutions--the ones sitting at the experienced far end of the continuum--are exceptional. Indeed, second-tier research institutions tend to expect the most experience; Harvard and Johns Hopkins do not expect you to have your own research grant. Most hiring committees aren't looking for completely independent work; they're looking for original, creative ideas, together with a record of accomplishment. Few people applying for tenure-track jobs have had the opportunity to start their own research programs. After all, traditionally that's what assistant professorships are all about, and most institutions still think that way. It helps to be somewhere in the middle of

that continuum, but most committees are still looking more for promise than for guarantees.

Demonstrate your promise by displaying your potential and actual independence. Show the committee that you have the deep thinking and talent to operate independent of your adviser.

How do you demonstrate your independence when you have never been given the chance to work independently?

Likely as not, all your data were collected in someone else's lab, as a part of someone else's research agenda. How, then, do you distinguish *your* research from your adviser's research?

On paper. It's an apparent Catch-22: You need to show that your ideas are fresh, new, and yours, and you have to show they're grounded in work you've already done, usually in someone else's lab. It's a tough sell, but most of your competitors are in the same boat.

So how do you do it? One respondent said it beautifully: "The best plans usually build on the prior experience of the applicant but are not direct extensions of their postdoctoral work."

I'm going to type that phrase again, it's so important: The best plans usually build on the prior experience of the applicant but are not direct extensions of their postdoctoral work.

Unless you're one of the select few applicants with lots of experience leading your own lab, that's the key to your rhetorical strategy. That's the outline of the story you must tell: "I did this work as a grad student/postdoc and it was important and it was great. Now, as a faculty member, I want to do something a little bit different, but the work I'm proposing takes full advantage of the knowledge and skills I gained during the training phase of my career." It's different enough to be original, but similar enough that your years of training aren't wasted.

Another respondent wrote, "Most candidates (95%) stick to extensions of what they are most familiar with, but the key is, have they figured out some rather creative new directions for the research and have they done a good job convincing us that they can do it based on what is already known?" "Once we have a short list of candidates," writes yet another source, "the research proposals are looked at more carefully for imaginative ideas that differ from the candidates' Ph.D. or postdoctoral research." Get the message?

With your adviser's cooperation. One key to doing this successfully is to make sure your boss tells the same story. It is hoped that you have a good, open relationship with your adviser; if you do, go in and chat and coordinate your strategies. Decide what turf is his or hers, what turf is yours, and what story you intend to tell in your research plan and his or her letter of recommendation. But make sure they don't match too precisely.

Is this sort of coordination unethical? Hardly. There's no deception here, no attempt to pull the wool over the committee's eyes. On the contrary, it's clarity you're seeking: in your relationship with your adviser and with the hiring committee.

Be careful, however: This *is* tricky ethical territory. The ideas you're claiming *must* be yours. Don't just take your adviser's ideas and package them as your own, even if your adviser signs off on the plan.

If your relationship with your adviser isn't so chummy, you still want to do these same things; you just want to do it more carefully.

If you still have time, set up your own lab in the corner of your adviser's. If you aren't applying for jobs right now, there's still time. Talk to your adviser about carving out your own research niche within the larger research effort, where you do work motivated by your own original ideas, something related but oblique to what your adviser is doing in the rest of the lab.

Is the research plan more important in the screening phase or late in the game?

In general, research plans are weighed more heavily later in the game, with more readily comprehensible evidence (especially pedigree, letters of recommendation, impact factor of journals, etc.) being weighed more heavily in the early rounds.

However, your research plan must be designed to serve more than one purpose. It must withstand intense scrutiny in the later rounds of the job search, and it must make a good first impression.

How long should it be?

Opinions vary. One person I spoke to said that a research plan should be "about three pages of 1.5-spaced text, and NEVER more than five." Another source prefers "three semi-independent (but related) sub-proposals not more than about three to four pages (single-spaced) each with a half page of important and relevant references." That's nine to 12 pages. There is some variation from one discipline to the next (the first of these recommendations came from a medical school, the second from a department of chemistry), but there are few if any standards even within a field. This shows how much of a crapshoot getting hired can be: Because you usually don't know in advance how long a document the hiring committee is looking for, there's little chance of the same candidate, no matter how qualified, getting offers from both of these institutions.

My recommendation? Call the chair of the hiring committee (or send e-mail) and ask for advice. If no advice is forthcoming, aim for five pages, 12-point Times New Roman, 1.5 spaced. Some will think it's a bit too long, others a bit too short, but no one will throw it out because of its length.

Remember that we said that a research plan needs to help you through initial screening and withstand careful scrutiny in the later stages.

How do you make a good first impression?

Keep it short. No more than five 1.5-spaced pages, unless you've gotten different advice from the hiring committee chair.

Write it carefully. Make sure that it swings. If you're a lousy writer, get help.

Include an executive summary. Call it an abstract if you wish. The idea is to present, up front, in half a page or so, the information that the committee is most likely to be looking for in the early, screening phase of the search: clearly stated research goals, the most compelling motivation, and the general approach you intend to take.

Pay attention to the layout. Keep the number of fonts to a minimum, but make sure the various sections and ideas are set off by plenty of white space, well-chosen section

headings, etc. Bulleted lists are good; page-long paragraphs, bad. And for gosh's sake, use your spell checker.

Use good graphics. A good figure, displayed prominently and captioned carefully, is worth, say, a couple hundred words. "Clear figures and illustrations," writes a respondent, "that can give the reader (skimmer!) a quick (and clear) idea of the proposed research is a must." If committee members can get the gist of what you're saying from a figure without wading through your impenetrable prose, your odds of getting interviewed shoot up.

Focus on the work, not yourself. A research plan should tell how great the science is, not how great you are. Selling yourself is the job of your curriculum vitae and letters of recommendation. "Focus on contributions to scientific knowledge, not research experience and expertise," writes one respondent.

Avoid obvious mistakes. Surprisingly, a lot of people mess this up. In her list of fatal errors, one respondent wrote: "Poorly covering or misstating the literature, grammatical or spelling errors, and, near the top of the list, writing research plans that ask for too much effort on the part of the reader--they should be clear and concise."

Avoid obvious hype. You want the value of your research to speak for itself--avoid exaggerated claims of its importance. "Over hyping," writes a source, "is very dangerous."

How do I make my plan withstand careful scrutiny?

Most of this has already been said:

Avoid mistakes.

Avoid misrepresentations. "A perceived misrepresentation of any kind can doom an application."

Motivate your work (why *must* this work be done?).

Think it through and present a workable strategy.

Use appropriate detail.

Include preliminary data.

Demonstrate your awareness of other work being done in the field. One respondent said, "I have seen applications rejected because they appear to have been produced in a vacuum without reference to other scientists."

Should I include a research hypothesis?

There is some disagreement here among respondents. One respondent listed a hypothesis among the essential features of a research plan. Others preferred a broad-brushed approach: "Is the research question a good question? Is it big enough, but with answerable individual questions so that the question generates a research path that could be followed for some time?" Including a hypothesis is unlikely to hurt you (assuming it's done effectively), and it'll keep you in the running at institutions where a hypothesis is required.

Other advice

Present more than one good idea. Even the best idea might fail to pan out, so you need to have a backup. Furthermore, presenting more than one idea will help convince the committee that you aren't a one-trick pony. Your research plan should be coherent, with a theme common to all your work, but not so close that they seem to be shades of the same idea.

Customize your research plan to the institution you're applying for. It's pretty obvious, but you wouldn't send the same research plan to Johns Hopkins University and to Swarthmore College. And speaking of Swarthmore: Research plans sent to predominantly undergraduate institutions should be carefully designed to coexist with substantial teaching loads and to benefit from the participation of undergraduate students.

> To find sample Research Statements with content specific to your discipline, search on the Internet for "your discipline" + "Research Statement"
>
> University of Pennsylvania Sample Research Statement: http://www.vpul.upenn.edu/careerservices/gradstud/sciother1.pdf
>
> Advice on writing a Research Statement (Plan) from the journal *Science:* http://sciencecareers.sciencemag.org/career_magazine/previous_issues/articles/2002_07_26/nodoi.4611149009600202486

2. Show Me the Money: A new PI's guide to putting together a startup request

The Contemplative Mammoth
ice age ecology, early career academia, and diversity in STEM
https://contemplativemammoth.com

By Jacquelyn Gill on August 4, 2015 •

It's hard to believe it's been two years since I moved to Vacationland to start a faculty position! One sign that time has flown by is the dwindling funds in my startup account. When you get a new faculty position, you negotiate for things like start date, teaching, spousal hires, and salary, but you also negotiate for the money that will kickstart your research program. As I approach my third year, I thought I'd take a moment to share some thoughts about how the process went, what I'd do differently next time, and what worked well.

As context, this is my first faculty position, and I'm at a research university at the flagship state school, which is a land and sea grant university. Maine isn't affluent, but its fiscal conservatism allowed it to ride the recession with a lot less collateral damage than many of our peers. I have a joint appointment with the School of Biology and Ecology and the Climate Change Institute; the latter has a reputation as a research powerhouse on campus. My research involves a lot of lab work, with needs for microscopy, a chemical

fume hood, and space for sediment and fossil analysis. Ultimately, I've got three rooms, one of which is shared with other researchers but under my supervision.

How it Works

If you're like me, putting a startup request together is panic-inducing. It was unlike anything I'd really done before, and there were so many unknowns. I was really grateful that I'd spent a lot of time invested in my grad lab — as lab manager, I did a lot of ordering and the safety training, so I had a good idea of equipment needed, where it comes from, and how much it costs. If you can get this experience during your grad career or postdoc, it's worth it. I was not given a dollar range, though I've been told that it's okay to ask what it's "customary" for new hires to get.

Putting my request together took a surprising a lot of time, so be prepared to spend a large portion of your week on putting your request together. You may not have a lot of time to do this — I had a week, but I've heard of shorter turnarounds. I didn't have any guidance in terms of how much to ask for or what format to put my request in. After consulting with my PhD advisor and several colleagues, I put together an organized, detailed spreadsheet and an accompanying budget justification, where I outlined how and why each item was important to my success. It was detailed and thorough, but also not bogged down in minutiae; you don't need to list every beaker and flask when "Glassware" will do.

After I submitted my request, which in my case went to the chairs of my two departments, there's a waiting game. The chair negotiated with the Vice President of Research on my behalf. I felt well-represented during this process, and that they did due diligence to bargain on my behalf. They then came back with a revised list, which included suggestions for things to cut, including a list of things that were already in the lab (e.g., a drying oven and muffle furnace), things the VPR wouldn't fund (undergraduate salary and publication costs), and things that were inflating the budget (a Geotek that made up half my ask). I had the opportunity to be firm on some things, mostly for field equipment that existed but which I wanted to replace because of its age. They took the revised request back to the VPR, and we had a deal. My official offer letter came shortly after.

Things I'm Glad I Did

1. I asked for help. I contacted colleagues that had recently gotten hired, and asked for their lists. I had good mentoring, so I knew that I should not only submit a spreadsheet with careful sections (e.g., Fieldwork, Office, Chemical Lab), but also a budget justification. By asking people for copies of their requests, I discovered a number of things I wouldn't have remembered or even known I could ask for, and I had some nice boilerplate language for the justification.

2. I aimed big. My initial list requested twice what I was ultimately offered (mostly

because of the one piece of equipment that got cut*), but I also asked for some big-ticket items that were dream purchases but not necessarily essential. Your startup is the one time you have to ask for things, so it's worth coming up with a dream list; they may say yes! They may bring you back to earth in negotiations, but you'll almost certainly end up with more than if you were conservative. Plus, asking for a lot gives you wiggle room to cut back, as opposed to starting with your must-haves and being told to cut something.

3. I gave myself a buffer. There were a couple items that were in the $20,000 range that were dream items that I *did* get approved, but wouldn't sink me if I couldn't get them. I also rounded up on all catalog prices, which were in many cases more than what you actually get (universities get discounts from the list price, and you can often get a new-PI discount on top of this — ask your reps!). This helped my money stretch longer, cover things I didn't think to put in my request, and covered emergency repairs, travel, or student funding gaps. I'm so, so glad I did this. It's saved my butt more than once.

4. I included non-lab items. You may be so wrapped up in calling manufacturers for quotes or making mental lists of every tiny bit of equipment you use in your lab that you forget to think of miscellaneous items. You can ask for things like moving costs, office furniture (including a standing desk or dry erase and cork boards), software (including things like Dropbox subscriptions), student office space, a computer, a dedicated TA-ship, publication costs, money to visit NSF to talk to program officers, a trip to look for a house, travel money to go to conferences.

5. I asked if I needed renovations. You may need safety upgrades, a paint job, new floors, better lab benches, or other basic infrastructure. Your space may not have the electrical outlets that fit the plugs for your equipment. Your lab bench may shake too much for your high-powered microscopes. You may find that the floor slopes or a counter isn't heat resistant, or a hood isn't coded for the chemical you need. Ask about these things in writing, and make sure you have an answer in writing. You don't want to spend money dedicated to your first field expedition or a new microscope to go to a new lab bench instead.

6. I spent the money. You probably don't have funding yet, and you likely won't for your first few years. Your startup has to keep your lab going in the interim, generating the data you need to get published and funded and, ultimately, tenured. You may be tempted to be stingy with your funds because they're limited, but I think it's better to spend than to save in this case. I don't regret sending my student to Denmark for a workshop, or buying equipment for another student's dissertation that I couldn't have dreamed of two years ago. These are worthwhile investments. Treat the money like you're building a launchpad, because that's what it is. A trampoline won't take you as far as a couple of booster rockets.

Things I Wish I Did

1. Schedule a second visit to check out labs more thoroughly. In my case, I was replacing a retiree who did similar work, so a lot of things like fume hoods, microscopes,

and ovens were already there, but were old. In the last two years, I've ended up needing to replace that drying oven after all (yeah, we had one, but it was 25 years old and Fisher doesn't make replacement parts anymore). You can put together a better-informed startup request if you have a more intimate knowledge of the space and the age and quality of existing equipment.

2. Negotiate for indirect cost returns. Universities have an overhead rate that's usually between 40% and 70%. This is supposedly to "keep the lights on," and contribute to the support costs of your grant-funded research. When you write an NSF proposal, you have to tack on that ~50% as an add-on to the amount you ask for in your grant. Some universities will allow you to ask for a percentage of that back, which goes back into your startup or a slush fund. This can be a great way to have a little extra floating around for your rainy day fund. Because it will rain, I promise you. A lot.

3. **Get it in writing — all of it.** In my case, I had an email with my startup request, but it wasn't in the contract letter I signed. To be clear, I have had zero problems in the interim, but in retrospect this was a mistake. Never, ever rely on verbal promises — about how much you'll teach, how much you have to spend, where your office is, what they'll pay for, whether you need renovations. Things change, people rotate in and out of positions, and people do sometimes get screwed over. It's never happened to me, but it has happened to my colleagues at other institutions. And in the case of the renovations I did end up needing, I was able to point to an email exchange as a reason why I couldn't spend my startup on the updates, which was really helpful in getting someone else to pay for them. But emails won't always work.

If you don't get the big thing you asked for, it's not the end of the world. NSF has programs that can help you acquire equipment, like GEO's Instrumentation and Facilities program and the Major Research Instrumentation program. Many universities also have small in-house competitions for equipment, undergrad research programs that pay for student techs, or laptop programs. It's worth finding out about these before you put your request together.

As I've spent my startup, I've mostly stuck to my list, but I've deviated here and there. I've spent more on travel and less on computers, for example. While the VPR may reject certain items (like undergraduate salary), once the money is in your account nobody really cares what you spend it on (or so I'm told!), so I've hired work study students over the last two years despite not having a line item for undergraduates. My department financial officer takes care of the books, and I get monthly updates (it's worth checking these, because mistakes get made — for example, they didn't know the details of my startup package and some things that my department was supposed to cover, like a certain amount of technician time, were charged to my account by mistake).

My money's running out, which is a little anxiety-inducing, but I'm ultimately happy with how things went. Be prepared to spend a lot of time and energy spending the money, too, which is another post in and of itself! I'd love to hear how other folks' experiences went. Feel free to share your story in the comments.

3. Top 10 tips on negotiating start-up packages

The faculty series: Top 10 tips on negotiating start-up packages
16 Nov 2015 | 12:00 BST | Posted by Jack Leeming | Category: Academia, Faculty, Funding

Negotiating the best deal for your research is something few junior faculty members are prepared for. Here's some friendly advice.

New faculty are often given a start-up fund by their new department, which is designed to be enough to cover equipment costs and other expenses before the grants start knocking on the door. The sum of the start-up isn't set in stone, and this leads to a dreaded period of negotiation; the difficult and lengthy process that few junior faculty members are prepared for. Here, *Naturejobs* offers help and advice that any new faculty member should bear in mind when trying to get the best deal to carry out their research.

1. Know what you need before beginning any dialogue
Before beginning any negotiation, make sure to know what you absolutely need to carry out your research. Whether this is a telescope, the latest interactive graphics package, a peptide sequencer or a good old-fashioned centrifuge, getting your essentials right will put you in the right position to begin negotiating.

2. There's no point having equipment if you don't have any hands to use it
One of the largest costs you can expect to come out of your start-up fund are the salaries of PhD students and postdocs. They're **the** most crucial components of the lab for almost all researchers. These are also expensive and, unlike equipment, you have to keep paying for them. If you don't have the hands available to do the science, all of the new shiny equipment in the world isn't going to make a difference. Factor trainee costs into your budget.

3. Keep a detailed and prioritised inventory
You don't have to list every pipette and syringe you expect to use in one year's worth of research, but make sure to have an idea about how much these consumables cost, and summarise them as part of your budget. The more detailed your budget is, the better you'll look.

4. Remember the little things
Remember the personal details like parking, or covering a house-hunting visit, or moving expenses, or day care, or holiday time, or teaching requirements. All of these can be discussed as part of the negotiation process, and if you feel you need something extra to carry out your research, you shouldn't shy away from mentioning it. These should come into the negotiation process later, after the larger issues have been largely ironed out.

5. Take your time
The whole process takes a lot of time, and this is not a bad thing. Use that time to prioritise your request list, and to go through each iteration of an offer thoroughly (see

get everything in writing). Be patient – even if this is your only offer, the people you're negotiating with don't know that.

6. The process is a partnership
Walk into the negotiation process with this in mind – both you and the board you're negotiating with are trying to get the best deal to carry out your research, and wherever you're applying, they won't have an unlimited amount of money. Everyone wants to see you succeed.

7. Stay grounded
Don't have an ego when applying for start-up funds. Think objectively about what you do and don't need, and remember that there are more likely than not other people who will also need start-up funds soon. Give on some things. The people you're talking to will be much more experienced than you in negotiating, and will know an ego when they see it.

8. Get everything in writing
This can be harder than it sounds – often people will call to let you know their latest offer, and whilst you should of course be appreciative, getting the details in writing is the only way to guarantee that offer. Just send a quick email to the person who made a verbal offer to confirm what was discussed. It also means you can take your time, and check over the paperwork for anything you might have missed.

9. Be genuine
Negotiating is not a battle over the money available. Remember that both parties want your research to succeed and build that into your negotiations. Be genuine and honest and people will be grateful for it. Who knows – they may well give you a little more than they were intending to. Make sure to explain why you need everything you need, as opposed to just saying that you do – transparency is key.

10. Be positive
Always approach every step with enthusiasm, and try to suggest win-wins. Perhaps you could share some of the equipment you need with other members of the group, or maybe the cost of a PhD student could be split collaboratively with another member of the department. If all goes well, you're going to be working with the people you're negotiating with for a long time; make sure to start off on the right foot.
Negotiation can be a painful process, but with the right attitude and skill set, you can turn it into a genuine tool to help you and your new department find the right way to help you succeed in your research. Good luck out there, and check out next week's post on how to set up your brand new, freshly-negotiated lab. Stay tuned.