

Career Center

Postdocs in STEM

Academic, research-focused

The most common and most traditional style of postdoc is a grant-funded position working under the direction of one or multiple PIs. The vast majority of your time in this type of postdoc is spent on academic research in your discipline. While it may initially be stressful to start a postdoc position with a firm end date set by a grant, this can also be a source of motivation to consistently consider how you are making progress toward your post-postdoc career.

Even within academic research, postdocs can have different experiences based on the size and make-up of the lab. In large labs with many postdocs, you may have more independence in managing your research project, but you may not have as much direct interaction with your postdoc advisor or support in the day-to-day management of your project. In smaller labs, there may not be as much research assistance in preparing materials, ordering, paperwork, etc., but you may have more exposure to the non-research elements of how a lab is managed. Newer faculty may put more pressure on you to produce results and publish, which can be a good environment for those who are driven by deadlines and competition.

Depending on the funding source, the nature of academic postdocs can vary. It is important to talk to potential academic postdoc mentors about their expectations around funding. Some can stably fund a postdoc for years and postdocs have the option to apply for their own funding. Other mentors will only fund a postdoc for a relatively short period (perhaps a year), and it is up to the postdoc to obtain funding to continue their position. Still others may require that a postdoc have their own funding from the start of their appointment.

Federally-funded

Grants from U.S. government agencies are one of the more common funding mechanisms for postdocs. Some institutions have training grants, such as the NIH T32, to support postdocs. You can search NIH RePORTER for institutions and investigators that have current T32s, <https://projectreporter.nih.gov/reporter.cfm> (for Activity Code, select "Training Grants (Ts)", search, and sort results by Activity Code).

Individual postdocs can also apply for their own funding. For example, the NIH offers F32 individual grants and the NSF has a number of postdoctoral fellowships, https://www.nsf.gov/funding/education.jsp?fund_type=3. Before or during your time as a postdoc, you may write an application with your mentor for one or more of these grants to fund your salary and research.

Privately-funded

Funding for postdocs is also available from private foundations and organizations. Often this funding is affiliated with particular universities, and it is not as common as federally funded grants.

- Bell Fellowships at Harvard, <http://tinyurl.com/k83w4j9>
- Robert Wood Johnson Foundation, <http://www.healthandsocietyscholars.org/>
- University of California's President's Postdoctoral Fellowship Program, <http://ppfp.ucop.edu/info/>
- Professional societies
- Ford Fellowship for underrepresented minorities, <http://tinyurl.com/mofku6a>

Continuing as a postdoc in your current research group

After graduation, you may still be finishing research projects and searching for your next career opportunity. Your PhD mentor may allow you to stay in their research group as a postdoc for a few weeks to a few years, depending on their funding. While this arrangement can be convenient, be judicious with the length of this temporary postdoc position. If you know you will stay in the same geographical location for a year or longer after graduation, it may be better for you to take a postdoc position in a new research group, even if you stay at the same university. On the academic job market, search committees want to see that you have research experience on various projects under different mentors. Even for postdoc positions, some federal funding and states limit the total amount of time you can be a postdoc, whether at one position or multiple, to five years or fewer.

Government and national labs, research

The U.S. government and national labs employ a large number of postdocs at various research centers around the country (11% of all US postdocs according to the Survey of Doctorate Recipients 2013). In these positions, you would either be a federal employee (receiving government benefits), employed through a separate postdoc fellowship program (not receiving government benefits), or employed by a federal contractor. Postdocs in government and national labs are very similar to academic postdocs in that the main focus is on research. Unlike academia, these postdocs involve much less teaching and applying for grant funds. Salaries are often higher than at universities, and many of these organizations will hire international scholars.

Explore opportunities on this list of national labs and government agencies that often support postdocs.

- National Institutes of Health, <http://tinyurl.com/kgl8emq>
- NSF, <http://tinyurl.com/m4nzb7a>
- EPA, <https://cfpub.epa.gov/ordpd/> (programs), <http://tinyurl.com/mdmpxuf> (other listings)
- Smithsonian, <http://tinyurl.com/k3j7e3t>
- National Institute of Nursing Research, <http://tinyurl.com/kvtqovu>
- National Institute of Standards and Technology, <http://tinyurl.com/leo4p52>
- Center for Advancement of Science in Space, <http://tinyurl.com/n7ckprd>
- National lab and government postdoc listings from Oak Ridge Institute for Science and Education, <http://tinyurl.com/caynrop>

Academic, teaching- or education-focused

A growing type of academic postdoc involves more teaching than a research-centered position. Each appointment will have a different mix of research, teaching, and service. Length is highly variable depending on program, funding, research progress, and personal goals, from one year to five or more years. Longer than five years decreases chances of attaining tenure-track position. Thus far, most of the opportunities are in the biological and biomedical sciences, but there is potential for other fields to offer more positions like these.

Science research-focused with some teaching

Many universities and colleges are acknowledging that they want to hire faculty who are effective teachers as well as world-class researchers. Instead of focusing solely on research experience when reviewing applications, these institutions are also expecting substantive teaching experience.

One of the major opportunities to complete this type of postdoc is through the Institutional Research and Academic Career Development Awards (IRACDA) programs. There are 22 IRACDA programs around the United States (including the SPIRE program at UNC-Chapel Hill), <http://tinyurl.com/k4nu4sz>. Each program is designed slightly differently than the others, so be sure to read through the information carefully about research vs. teaching expectations and professional development opportunities. Most programs were established to give postdocs experience with teaching and curricular design while they also conducted scientific research. Teaching opportunities can be at smaller, nearby institutions such as Historically Black Colleges and Universities (HBCUs) or Minority-Serving Institutions (MSIs), providing postdocs with experience with different types of undergraduate populations.

Science museums may also have positions where the postdoc performs research and participates in science outreach. One example is the North Carolina Museum of Natural Sciences, <http://tinyurl.com/kcw4cuh>, which has research programs in vertebrate biology, microbiology, and genomics. While conducting research at the museum, you can help the public better understand science during regular presentations or interactive labs. The American Museum of Natural History also provides similar opportunities, <http://tinyurl.com/n2dgi9d>.

Some smaller, liberal arts colleges and universities may also have postdoc programs during which scholars conduct research balanced with a relatively light teaching load. Note that the resources and facilities at these institutions are more limited than those at Duke, so the scope or type of research that you can perform may be different. Elon University, for example, has a Post-Doctoral Fellowship for Teacher-Scholars from Diverse Backgrounds, <http://tinyurl.com/m86g5pd.html>. These postdocs can prepare you well for faculty positions at these types of institutions.

Teaching-focused

A small subset of positions center on providing teaching experience without research expectations. They can be called postdocs or visiting assistant professors. Some institutions also hire instructors, which tend to be a full-time, permanent position while postdocs or visiting assistant professors are full-time, short-term or contract positions. All of these positions differ from adjuncts in that adjuncts are not full-time positions and are contracted by the course and section.

Some teaching postdocs specialize, such as Duke's Thompson Writing Program Lecturing Fellowship, <http://twp.duke.edu/about/twp-fellowships>. Others include administrative responsibilities and are often tied to undergraduate or graduate education grants. Use the resources in the "Searching postdoc listings" section to find some of these opportunities.

Education research-focused

Postdocs in this field conduct research into the principles and techniques of educating students at various levels. They may develop and test novel curricula, evaluate the effectiveness of educational programs and initiatives, or serve as an expert in pedagogy to train faculty. Many of these positions are funded by grants from the NIH, NSF, or HHMI. For more detailed information on these postdocs, the career paths they can lead to, and resources, read this article from the journal CBE-Life Sciences Education, <http://www.lifescied.org/content/15/4/es10.full>.

Academic administration-focused

Some PhD training programs and academic departments are offering postdoc positions to undertake administrative roles. Each position is a unique combination of coordinating educational programs, writing and managing training grants, teaching courses, or recruiting students. Postdocs may also be responsible for fostering diversity in academia. Appointments such as these can be good preparation for careers in academic administration, research administration, program coordination or evaluation, or as professors of the practice.

Non-academic/industry, research

Postdoc positions are available at various non-academic institutions such as private companies, nonprofits, institutes, and think tanks. Industry postdocs are not as common as academic postdocs (14% of all US postdocs according to the Survey of Doctorate Recipients 2013), but they can be an opportunity to try a career in non-academic research with potential to transfer into an industry position or return to academia. Since industry postdocs are not as numerous, there can be more competition for these positions. The duration of the postdoc depends on the company, but often it will be between one and three years.

A non-academic postdoc can help you build a network within that organization and across a particular field. While your current network is mostly academic, once you are in a non-academic setting, it will be easier to meet new people in this area and find out about new opportunities. In meeting other professionals, you will also build multidisciplinary and learn to approach problems from different perspectives. During your postdoc, you may be able to build different research skill sets with access to different research equipment and resources than in graduate school. There is a larger focus on collaborative and cross-functional teamwork than in academic research. You will likely earn more than the average academic postdoc, and you will see how industry differs from academia in how it approaches problems and develops projects.

If you are interested in an academic career long-term, be selective about the non-academic postdocs you apply to. Some companies allow postdocs to publish results in academic journals, but others want to keep research results proprietary. You may file for patents, but those may not be as strong as publications on the academic job market. While looking for these postdocs, ask if you could use research from the postdoc to start your own research program in academia. If you do not have the publication record or a research program at the end of your industry postdoc, you may have to complete an additional academic postdoc to build those credentials before applying to tenure-track positions. From what data are available in the biomedical sciences, most industry postdocs who then move on to research roles stay in biotech or pharma (Next Gen PhD by Melanie Sinche). It is certainly possible to move onto academic positions after an industry postdoc. Look critically at the postdoc positions to see if you'll build the credentials you'll need for the academic job market or if you'd have to do another postdoc to transition back to academia.

Questions to ask yourself as you contemplate a non-academic postdoc are, “Am I uncertain about choosing a career path in academia or industry?” and “Am I ready to take the plunge and move into industry completely?” Meet with professionals and have informational interviews to learn more about careers in their field. If you are interested in non-research careers in industry, then a research-based postdoc is not a good fit. You will not gain much relevant experience, so it is often better to find an entry-level position in your field of interest.

Jobs in industry research and development have a reputation for being less stable than academic appointments. While it is true that projects in industry can be shut down quickly, that company or other nearby companies recruit people who were working on those projects. Once you’re established in industry, a search for a new job can take as little as a few days or weeks.

There are a few of questions you should ask potential employers. First, how often does the company hire postdocs as full-time employees? For some companies, an industry postdoc program is a pipeline to hiring full-time. Other companies, though, do not hire from the postdoc pool. Second, how does the postdoc salary compare to an entry-level PhD’s salary for a full-time position? Make sure you are not underpaid for doing the same level of work as other PhDs in the company. Third, what professional development opportunities are there? Like an academic postdoc, you should continue to learn and grow. Formal mentorship and career development programs are ways that some companies show they are dedicated to helping you become a research professional.

Read more about industry postdocs from these sources

- <http://tinyurl.com/m9mjagd>
- <http://tinyurl.com/m9dpxn3>

Entrepreneurship or start-ups

There are different types of opportunities for entrepreneurship after graduate school or during a postdoc. Official programs include:

- Cornell’s Runway, <http://tinyurl.com/me7j4vu>
- UC-Berkeley’s Postdoctoral Entrepreneur Program, <http://bpep.berkeley.edu>
- You can also apply to different start-up incubators and competitions, <http://tinyurl.com/l4rbmrf>
- Learn more about careers in this area through Duke Innovation and Entrepreneurship, <https://entrepreneurship.duke.edu>