Academic Career Paths

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Overview

- Most common path to academic positions:
  - Graduate school
  - Postdoctoral Appointment(s)
  - Faculty or National Lab position

- This is not the only academic or career path!

- Faculty jobs can cover a range of institutions that have different aims and criteria
  - R1 research institutions: High research activity→ Research heavily weighted in applications
  - Liberal Arts College: Focus on undergraduate education, some may not have graduate programs→ Teaching more heavily weighted, some do not require a postdoc

The academic track is highly competitive

Position Status of New Faculty Members Hired, 2017–18 Academic Year
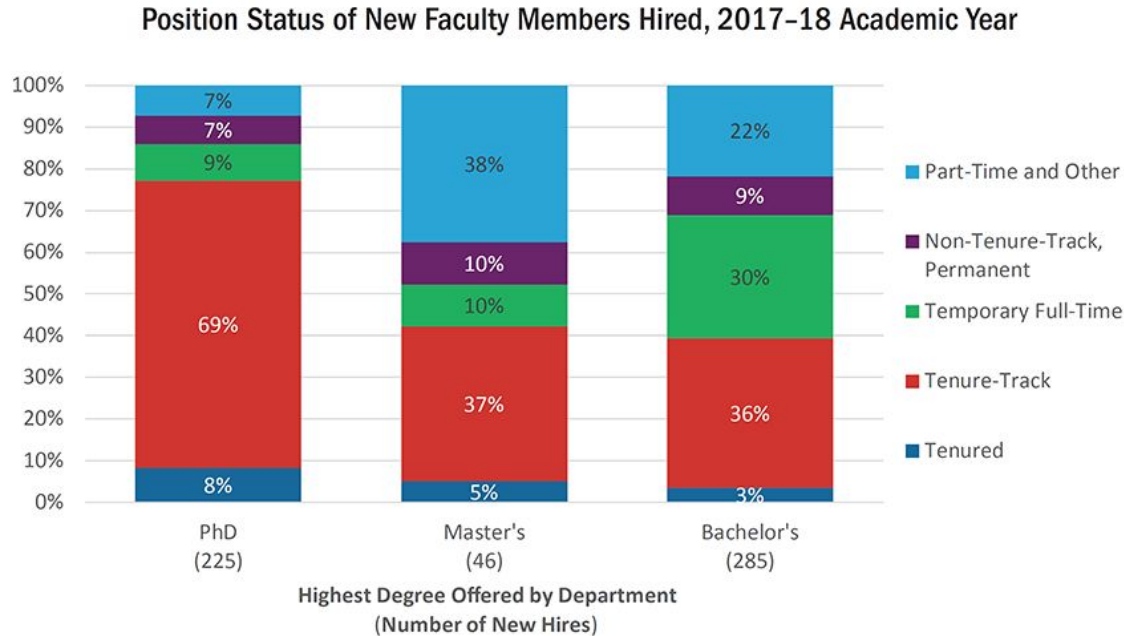
- ~1600 PhDs/year

- ~½ get postdocs with the intention to continue on to faculty

- 556 faculty positions of all types

- 259 tenure-track or tenured positions

4

Set yourself up for success now

- Consider all your choices
  - Think about what you are good at doing and enjoy doing→ use a career journal for tracking
  - Record both technical and non-technical skills
  - Consider what you value in a potential career

- If you know which path you want to take, work on projects that build the skills you will need for that path
  - Academic jobs are a balance of research, teaching, and service

- Start building your network now
  - Academic conferences
  - Through your collaborations
  - LinkedIn

Postdoctoral Appointments

- Typically for 2-3 years each, but can be longer/shorter

- Many people do multiple postdocs

- Fellowships: Funded by an institution→ More freedom in research
  - Usually a committee of members from across the institution
  - Cross-cutting research/planning to work with multiple groups can work well here
  - Need to sell your science, make understandable to broad audience

- Hired by a research group→ Doing research for that group
  - Just the professor/scientist that is hiring or a committee of professors/scientists usually in your research area
  - They want you to work for them on their projects
  - Don't need as much background in statements, can be more technical

It is critical to talk to people before you apply!

- Find out what projects they are most excited to have people work on
  - Is it a good fit?
  - How often will you be allowed to present at conferences?
  - Will you be able to take leading roles and do research that will aid your career goals?
  - Tailor your application to these

- Find out what department dynamics are like for fellowship applications

- They will know to look for your application/tell the committee to look for it

- Introductions via mutual contacts or cold emails/introductions
  - Introduce yourself to potential employers at conferences and tell them that you will be on the job market in the fall (Spring/Summer are great for this)
  - Introduce yourself (e.g. who you work for, institution, etc.) and say that you would like to set up a time to discuss a potential postdoc positions

Postdoc Applications

- Cover Letter (~1 page)
  - Most underutilized piece of the application
  - Say what position you are applying to, your current position, how your research/experiences are a good fit for the institution (can include wording from posting)

- CV and Publications List
  - These can be long→ make sure the most important information is early and that formatting makes it easy to follow
  - Titles alone don't tell people what **you** do→ include bullets of major accomplishments
  - Highlight papers that you played a leading role on first (e.g. significant contributions section)

- 3-5 Letters of Recommendation
  - You want people who are familiar with your contributions and can frame their importance
  - It is okay to ask someone if they think they can write you a good letter
  - More information = a better letter
  - Send information on deadlines, your research plans, CV, anything you want to highlight

Postdoc Applications

- Research Statement (~3 pages)
  - Describe your science, why it is important, and what you plan to work on
  - Include how you'd be a good fit for the specific institution (e.g. their infrastructure enables your research, there are many groups that you could work with)

- Diversity statement (~1-2 pages, not always a requirement)
  - What experiences do you have in diversity, equity, and inclusion work?
  - How have your experiences shaped your views and goals?
  - How you will contribute to a more diverse and inclusive environment (e.g. in the lab, in the department, etc.)?
  - How can you tie into and expand existing efforts?

Committees read many applications, so make the important information obvious and be concise (bolding, italics, section titles, repeating structure)

Postdoc Pay

- Typically higher at national labs compared to universities

- Also typically less than private sector

- Pay can usually be negotiated, but don't forget to negotiate other benefits too
  - Vacation time
  - Conferences/travel
  - Moving expenses
  - Career services for significant others

Starting Salaries for New Physics PhDs, Classes of 2015 & 2016 Combined
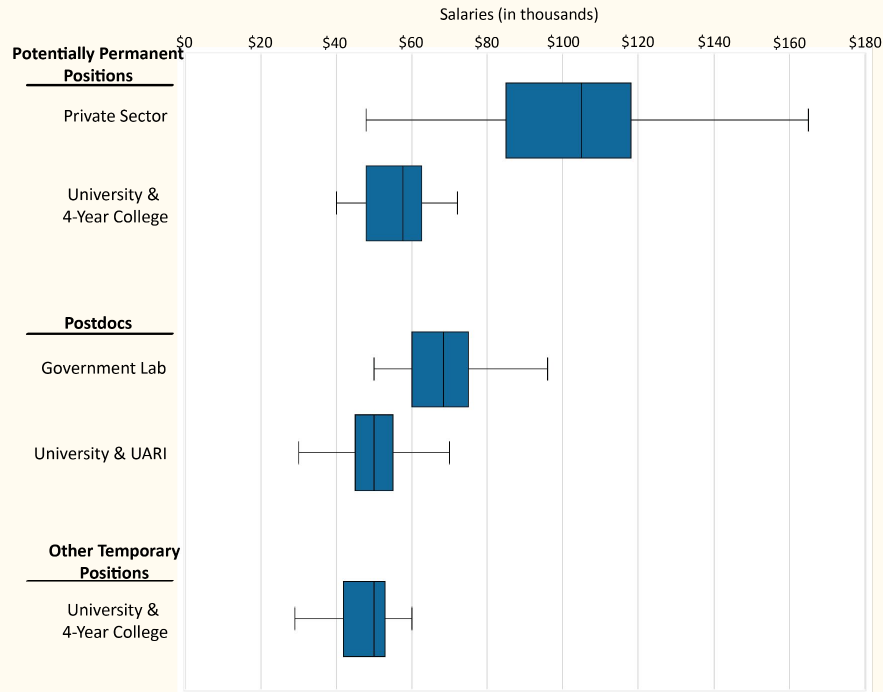
Data represents only US-educated PhDs who remained in the US after earning their degrees. The full starting salary range is represented by the lines extending to each side of the box. The box represents the middle 50% (25th to 75th percentile) of the salaries. The vertical line within the box represents the median starting salary for the sector. Government Lab includes federally funded research and development centers, e.g., Los Alamos National Laboratory. UARI is university affiliated research institute. The data for PhDs holding potentially permanent positions in academia include salaries based on 9-10 and 11-12 month commitments and have not been adjusted. Data are based on respondents holding potentially permanent positions in the private sector (214) and in universities and 4-year colleges (30), postdocs in government labs (78) and universities and UARIs (257), and "other temporary positions" in universities and 4-year colleges (24).

AIP | Statistics

aip.org/statistics

10

Faculty Applications

Have people from within and outside your field give you feedback on your application

- Cover Letter (~1 page)
- CV and Publications List
- 3-5 Letters of Recommendation
- Research Statement (~3 pages)
- Teaching Statement (~1-2 pages)
- Diversity Statement (~1-2 pages, not always required)

Main differences in the Research and Teaching Statements

Faculty Research Statements

- Why your research is important

- Have a **10+** year plan with potential for a steady stream of publications
  - Nearterm projects with immediate results
  - Mid-term projects that will have results in a few years
  - Ambitious long-term projects

- Highlight how you are a leader in the field

- Note what resources you need and how you plan to get them (e.g. apply to XX grant to cover this project) → This will give them an idea of the scale of startup you will need

- How your research fits in and broadens the research program at the specific institution

- Committees are picking a colleague that will be around many years

Teaching Statement

- What types of classes you are interested in teaching (e.g. only upper level or willing to help with large intro classes)?

- What are your approaches to teaching? For undergrads? For grad students?

- How will you bring your research into the classroom?

Every application should be tuned to the institution

- Talk to several people at the institutions you want to apply to→ understand the culture, department goals, and what they are looking for in the search
  - Highlight aspects of you and your work that fit into their plans
  - Example: This search says it is for general physics but they really want a solid state person because they want to build up a stronger program here
  - Example: We have a particular interest in finding someone who can help revamp our curriculum, so highlighting teaching skills is important

- Research the institution and tune accordingly
  - Example: There is a new computing center and your research would benefit from using it
  - Example: They want to be on the cutting edge for physics education

- Think about what you want to accomplish and include what resources you need to do the work in your research
  - Example: If the graduate program only has 10 students/year, you shouldn't say you need 10 grad students working in your lab to do the work

National Labs

- Very similar to faculty applications, but research statement tuned differently:
  - Cover Letter (~1 page)
  - CV and Publications List
  - 3-5 Letters of Recommendation
  - Research Statement (~3 pages)

- Postdocs are more available than graduate students at national labs

- DOE is more mission-oriented→ Consider what DOE projects the lab is working on/areas where they would like to go
  - Make sure to reach out to people at the labs you are applying to get a feel for this and to learn about lab culture

Interviews

- Sometimes there is a phone/zoom pre-interview to make the short list

- Typically you will give a colloquium→ critical to assess your research and how you communicate it

- Interview meetings to talk about your research/teaching
  - One-on-one meetings for 1-2 days with other faculty/scientists
  - Meetings with the chair/deans → may ask about startup cost details for faculty
  - Meetings with the full hiring committee
  - Meetings with student groups
  - Note: National labs often ask behavioral questions too

- Think about answers you might give to common questions and come prepared with questions you have as well

Main Points

- Build your network and take on projects and opportunities that bring you closer to the career you want

- Start identifying people now who could be potential letter writers and further build those relationships

- Good applications and interviews are tuned to the specific institution

- Make sure the institution and the career path is a good fit for you

- If you get an offer, make sure to negotiate (not just salary!)

- You are not alone! Find mentors that are willing to help guide you→ Different mentors can play different roles

Previous Position of Newly Hired Faculty Members — Tenure or Tenure-Track Positions