

**TO:** Prospective Pre-Docs  
**FROM:** Alvin Christian  
**DATE:** July 10, 2020  
**RE:** Applying to Pre-Doc Memo

## Introduction

In this memo, I describe the application process for Pre-Doctoral positions in economics and closely related fields. This memo is targeted at undergraduates, though those with professional experience might also benefit from it. I briefly describe what a Pre-Doc is and where to find such positions. I also include tips for writing a cover letter, doing the data task, and interviews. This information is based on my experience applying to positions during 2017-18 and from hiring Pre-Docs/RAs.

## What is a Pre-Doc?

A Pre-Doc is a 1-2 year position where you work closely with a professor or research team as a full-time research assistant. The position is an increasingly important steppingstone to grad school for those interested in pursuing a PhD in the social sciences (economics, public policy, education, etc.). It is targeted at recent undergraduates, graduate students, and young professionals who want to transition into academia. It is a good opportunity to make yourself more attractive to grad schools, gain valuable skills through mentorship, and receive a recommendation letter from someone in your field.

The job experience will vary by institutions and professors. However, the main function remains the same—your job is to help your boss publish journal articles. Your day to day will vary depending on the projects you're working on and on the stage of the research process they're in. Unlike projects in school that last a term or two max, a lightning fast research project for professional academics probably won't be any shorter than a year!

Most of your time will be spent data cleaning, processing, and analyzing. For projects still in their early stages, you may find yourself mainly reading and writing—you'll read papers to familiarize yourself with the field and write research proposals, analysis plans, or literature reviews. You may also conduct fieldwork, design and administer surveys, manage undergrad research assistants, and draft articles. You will gain a breadth of experience from this job that will be valuable inside and outside academia.

## Where to Find Pre-Doc Positions?

The Pre-Doc application cycle typically begins in the fall and runs through the spring. Most positions start in the summer after students graduate. However, positions open up year-round. Positions that begin off-season are less competitive, so jump on those if you are able.

Here is a non-exhaustive list of places you can find Pre-Doc/RA positions:<sup>1</sup>

- The [NBER](#) is the best place.

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<sup>1</sup>The formal job title varies by organization, but look for ones named Research Assistant, Research Analyst, Research Professional, Research Specialist, Pre-Doctoral Researcher, Pre-Doctoral Fellow, etc.

- [@econ\\_ra](#) regularly retweets new positions.
- [EconJobMarket.org](#) has a centralized hiring marketplace.
- Look at individual universities, both on their general hiring websites and specific centers.
  - [Opportunity Insights](#) is the most famous example; their alumni attend top grad programs.
  - [SIEPR](#) at Stanford is very well-regarded and has excellent grad school placements.
  - Stanford GSB has a [program](#) for those interested in business.
  - Stanford Law has a [program](#) for those interested in empirical law.
  - [NYU Stern](#)
  - [Columbia Business School](#)
  - [Yale](#)
  - Harvard's [GSAS Research Scholar Initiative](#) is targeted at URM.
  - University of Chicago's [EPIC](#) specializes in environmental economics.
  - I've worked with the [Annenberg Institute](#) at Brown, and have found it extremely rewarding as someone interested in education research.
  - MIT's [SEII](#) is a great group for anyone interested in the economics of education.
- Consider government, policy evaluation organizations, and think tanks.
  - [The Federal Reserve](#)
  - [J-PAL](#)
  - [The Brookings Institution](#)
  - [MDRC](#) (I've worked here and learned a lot.)
  - [Mathematica](#)
  - [Abt Associates](#)
  - [American Institutes for Research](#)
- If you're still in school or a recent graduate, reach out to professors and let them know you're interested in doing a Pre-Doc. Faculty usually advertise among their networks, so you may get preferential treatment.

## Application Components

The application process generally requires four things: 1) a resume, 2) cover letter, 3) data task, and 4) interview(s).<sup>2</sup> I will not go over how to craft a resume in detail here, but here are some general guidelines: make it no more than one page, proofread for typos and inconsistencies, and clearly state what sort of research experience you have, mentioning any and all coding experience.

### *Cover Letter*

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<sup>2</sup>Many positions will also ask for references, so let professors know you're applying to RA positions. Some might also want a writing sample, so have a research paper handy.

First things first: submit a cover letter, even if the position says it's optional. I almost never push applications forward if they lack a cover letter. Second, don't submit a generic cover letter because these are easy to spot. If you do not explicitly show interest in the position, you will be passed over for someone who does. Third, make sure the writing is concise and clear (under one page). Be direct and avoid flowery language. Fourth, give specific examples: don't just tell me you're good at coding, tell me about specific projects or coding problems. Lastly, take time to proofread for typos and grammar.

Writing an effective cover letter is relatively formulaic. Here's how I outline them:

- Introduction (1 paragraph)
  - Introduce yourself and say why you would be a good fit for this position.  
**Explicitly say you're interested in a career in academic research and considering grad school.** Include a sentence saying you're interested in the field the professor works (e.g., health).
- Research and coding experience (1-2 paragraphs)
  - Write about data cleaning and analyses because this is what you will be doing on the job. Be specific and show you know how to clean data well—mention working with messy, real world data, making tables and figures, etc. Write about specific projects, research designs, or analyses you've worked on. Be sure to state any programs you have used (e.g., Stata). Convince the reader that you can code well and have relevant research experience.
- General/soft skills (1-2 paragraphs)
  - These will depend on your schooling and work history. Some things to write about:
    - Communication and writing skills
    - Subject-matter interest or background
    - Capacity to do independent work/research
    - Ability to work well in teams
    - Project management experience
    - Other soft skills you have that can help you succeed
- Conclusion (1 paragraph)
  - Conclude: thank them for reading the letter, tell them you look forward to hearing from them, etc. Indicate when you can start the position.

### *Data task*

If you make it past the initial screening, you will be invited to complete a data task. The group will send you data and ask you to answer a set of questions or compose a memo. You'll have to submit this work, along with your code, in a certain time frame (usually a weekend or a set number of hours). Most professors will ask for this to be done with Stata, though some are agnostic about programming language. This part can be nerve-wracking, so it's important to know what people are looking for so you can use your time efficiently.

Coding task: You need to show your code is organized, well-commented, and efficient. Show that you are aware of and know how to handle common coding problems. Don't focus your

time and energy on fancy analyses, but show you have the fundamentals down. I recommend reading Matthew Gentzkow and Jesse Shapiro's [coding guide](#). Here are some specific tips:

- Create a document block at the beginning that includes the purpose of the file, an outline of what you're doing, and important notes. In the code itself, write comments detailing exactly what you're doing and why, making references to any specific directions.
- Check for, make note of, and address common coding issues.
  - Missing values
  - Inconsistent merge variables (e.g., string in one dataset but numeric in the other)
  - Inconsistent variable values (e.g., some values have leading or lagging blanks)
  - Duplicate observations
  - Weird coding rules (e.g., missing values coded as -9999)
  - Data errors (e.g., impossible or improbable values for wages, age, population size, etc.)
- Do some data visualization, such as scatter plots, time-series line graphs, etc. Almost half of the coding tasks I completed involved recreating figures from the professor's previous papers.

Writing task: The writing task will vary from position to position, so here is some general advice:

- Keep the writing short and simple—answer questions as quickly and directly as possible.
- Include tables or figures—academics love tables and figures.
- Interpret regression coefficients, but make sure you do this correctly!
  - Is it a percent increase or percentage point increase?
  - Can you use causal language or is it a correlational relationship?
  - What are assumptions or threats included in the research design and model (e.g., parallel trends assumption for DiD, omitted variable bias, etc.)? What happens if they are violated?

### *Interview*

The interview process will vary by position. Some interviews will be with professors, some with RAs, and others with both. Some positions will have one interview, and others will have multiple. Even the types of questions will differ. For example, some positions will ask you general questions related to fit (e.g., can I stand to work with this person five days a week?) and others may ask technical questions (I had one where I was asked to elaborate on different maximum likelihood estimation techniques).<sup>3</sup> If you don't have much interviewing experience, I recommend researching common questions and tips. Here are some specific ones related to this position:

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<sup>3</sup>This RA was an asshole.

- Have a basic understanding of popular research designs (e.g., RCTs, DiD, RD, etc.) and econometrics (e.g., regression assumptions, linear vs non-linear models, etc.)
- Show genuine interest in the work: read the professor's papers and other papers from the field.
- Again, clear communication is key. Be able to explain basic data/econometric concepts to your grandparents (e.g., what can a logistic regression tell you?)
- Be normal, friendly, and pleasant. If you're getting an interview, they think you're qualified and are looking for reasons to not hire you. Show that you are someone they could work with every day, talk to about their research, and grab a bite or beer with.
- Ask questions:
  - What skills or traits make a successful RA?<sup>4</sup>
  - What is the day-to-day work like?
  - What projects are you currently working on?
  - What projects are you excited to do or want to do?
  - I'm considering graduate school—how will this position prepare me to succeed?
  - Are there opportunities to pitch or pursue my own research ideas?
  - I want to learn how to write an academic paper—is co-authoring a possibility?
  - I read your paper  $X$ , and am curious about  $Y$ —can you tell me a little bit more about that?

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<sup>4</sup>I like asking this question because I can follow-up with ways I have demonstrated those skills or traits.