

Graduation: Paperwork and Deadlines

There are a few paperwork that need to be done within various number of days before the thesis defense. Remember that you don't graduate on the day of the thesis defense. If you defend between January and March (or early April), you will graduate in May and if you defend between May (or late April) and December, you'll graduate in January. Some of the deadlines depend on when you graduate and others on when you defend. This (<http://www.bu.edu/cas/students/grad-resources/forms/graduation/index.shtml#phd>) webpage is actually a nice collection of the required paperwork and the deadlines. In short, the following are the main paperwork and the respective deadlines:

1. Prospectus due ~10 months before graduation

Prospectus is a ~10-20 page document which summarizes each chapter of your thesis. It may either describe what has been done for that chapter or describe what will be done and approximately how long it will take. You need to hand in the prospectus to the graduate office. Before you do that, your PhD committee has to meet with you to discuss your prospectus and they need to approve it. Once you write it up, you should get it approved by your advisor and then give it to your committee members to read. Then you should arrange for a date when the prospectus meeting will take place. Remember, getting multiple faculty members at the same room at the same time is usually pretty hard. So plan ahead. Your committee judges the following:

- i) The thesis is enough work for a PhD.
- ii) The thesis is not too much work for a PhD.
- iii) The timeline that you have provided in the prospectus (about when you intend to finish) is reasonable.

2. Diploma application for PhD degree due 2-3 months before graduation.

Depending on what time of the year you are defending your thesis, this deadline may be after or before your defense. If it is after you may worry about it after you are done with defense and other related deadlines. If not, you need to hand this in before your defense within the deadline.

3. Abstract due 3 weeks before defense

The abstract should be less than 350 words, which is pretty small for a PhD thesis. This should be written in the format exactly as the abstract page(s) in the thesis. The best way to do it is writing the abstract inside the thesis and then just print those pages of the thesis. You should hand it in the records office and it goes to the dean of College of Arts and Sciences.

4. Schedule of defense due 2 weeks before defense

Once the dean approves the abstract, the records office informs you about that. Then you may hand in the schedule of defense along with 14 copies of the approved abstract. This document (schedule of defense) includes the exact date, time, and place for your defense as well as the names of all the committee members. So you should finalize all these before you fill up this form. Again, planning ahead is necessary to reserve the room of your choice and get all the committee members at the same place at the same time. If you have anyone in your committee who is not a professor at Boston University, College of Arts and Sciences (such as the external member of your committee or a research associate

in the department), you or your advisor need to take special permission from the graduate school to include them. That also needs to be done before handing in this document.

5. Format-review appointment with Ms. Martha Khan no later than 2 weeks before defense

The graduate school website mentions, "Guidelines for the format of the dissertation (Library Research Guide) are available in the Graduate School Records Office, Room 112, 705 Commonwealth Avenue or through web here (<http://www.bu.edu/cas/pdfs/graduate/phd-dissertation-guide.pdf>). Please follow the guidelines exactly. Do not assume that exceptions to the format will be permitted. When the dissertation is near completion, and the preliminary pages are in place (but before the Final Oral Examination (Dissertation Defense), please make an appointment with Martha Khan for the format review. She is located in the Graduate School Office (353-2694). This appointment must be made no later than two weeks before the defense of the dissertation. Students living outside of the New England area may contact Ms. Khan regarding alternative procedures for the format review."

Ms. Martha Khan is known to be very strict about the specific format of the thesis such as width of the margins, placement of the page number etc. (see <http://www.bu.edu/today/node/8781>). The thesis template that is provided here should take care of all the specifics and if you follow that it should be fine. But always check the details of your thesis with the phd-dissertation-guide mentioned before. Remember that different printers or different file conversion software (e.g. ps2pdf) may mess up the margins or other specifics by a little bit. So you always have to check.

Application for Jobs (Post-docs and others)

You should start thinking about jobs ~1 year before your defense. Jobs are available throughout the year but majority of jobs start from September 1st and for those jobs the application deadlines are often on or before January 1st. In some cases, especially for prestigious fellowships and such, the deadlines are October 31st or even September 30th! So you should plan ahead about what kind of jobs you want to apply and start writing your research statement and future research plans. Here are comments from some of the graduate students of Astronomy department who graduated in July, 2009.

Loren Anderson

My job application process was to find jobs on the AAS register, email the job contacts to set up a time I may call them, then call to chat about the position and tell them about my background. I found it very useful to speak with the people before they got my application materials since I could then better tailor the materials to the job. I did not give any talks, but I did try to talk to a lot of people at AAS, with limited success. The people interested in my research at AAS were not offering postdocs. The "job fair" at AAS was a waste of time. I obtained letters of reference from three BU professors. From going through the job hunt, it seems that actually landing a job may take a number of different factors, luck being high on the list. When I applied to the job I eventually accepted, I had two papers out that my future bosses were familiar with. Had I not had anything published yet, I think

it would have been much more difficult to land a position. I was unable to use any influence or contacts from my advisor, but I think this would be the best way to start looking for a job.

Julia Duval

For me the job application process was very iterative. Looking back, my first job application was not very good. But with the thesis writing, reading new papers, and iterating the job application, it became very good by my last (successful) attempt (after 3 applications). My advice would therefore be to start early, and apply for jobs that you are not completely interested in, just as a "warm up".

Francesca D'Arcangelo

I had an unconventional job application process. Namely, I had to remain in Boston, and therefore had to explore many non-postdoctoral options.

In the beginning, I applied to a few fellowships that would allow me to either work at the Center for Astrophysics in Cambridge or to take a fellowship to an institution of my choosing. However, these fellowships are quite prestigious, and as such, are hard to win. When I did not get a fellowship, I began applying to postdoctoral positions in the Boston area that seemed to suit my talents. This is quite difficult to do in one location, as it is usually likely to find only a few good options in the entire country! There were only 3 positions that I felt I could apply for, but none of them were good matches to my research, so I did not get any offers.

With my academic options exhausted, I looked into non-academic jobs for someone with an advanced degree in the sciences. I found that, besides the obvious options of teaching K-12 and working in an engineering setting, there were a wide range of companies that were interested in hiring science PhDs for consulting. The "consulting" field can vary widely, from business consulting (McKinsey & Company, The Boston Consulting Group, Bain & Company, Princeton Consultants) to engineering consulting (Lux Research Inc.) to military surveillance and logistics consulting (MIT Lincoln Laboratory, Raytheon Company, BAE Systems, Northrop Grumman Corporation, Lockheed Martin, General Dynamics, MITRE) to even healthcare software consulting (Epic Systems Corporation). These companies are not interested in your research specialty or even your familiarity with their topic (for example, the business consulting companies will put you through a "mini-MBA" before you begin). Rather, they are interested in your abilities in reasoning, simulating, and thinking outside the box, abilities that they believe are developed by the process of obtaining a science PhD. The positives of these jobs are a substantial salary and the opportunity to learn "real-life", marketable skills. The negatives are mainly centered on your inability to pursue individual research in an academic setting.

The job offer I received and accepted was through Lincoln Laboratory, as a consultant for the Department of Homeland Security on advanced system concepts. I will be working

with colleagues with a range of scientific PhDs on the feasibility of different scientific ideas as they relate to national security.

For someone in my position, I suggest the normal astronomical avenues, such as networking and reading the AAS Job Register, but I also suggest some more mainstream job-search techniques. In particular, I placed my resume on monster.com and received a number of interview offers for non-academic jobs. I also uploaded my resume to the websites of a number of companies; if you upload your resume - as well as apply for specific positions - then they can contact you for other positions as they become available. In addition, the BU Engineering Department holds two job fairs, in the fall and in the spring, which are open to all. Many of the military consulting and engineering companies have tables there, so it is a great opportunity to meet representatives. Finally, I will give some "real-world" advice. Remember to be friendly, business-like and professional. Companies are often interested in a scientist's brain, but will only hire them if they have the right amount of social skills and relativity to survive in a business setting. Tailor your cover letter and resume for each job, dress professionally, and practice presenting complicated scientific ideas to a layperson - quite often, you will have to "describe your research" in an interview so they can judge how good you are at relating concepts to non-scientists. Most importantly, figure out how your resume can appeal to those in a non-academic setting - stress periods of individual responsibility, skills in computer programming, and skills in problem-solving.

Ritaban Chatterjee

With the experience that I obtained while applying for jobs last year, this is what I'll do if I were to apply for jobs again. AAS job register is a universal resource for employers and employees. Anyone who wants to hire someone related to Astronomy will put up their ad in this website. So that should suffice as your only starting point. Now, there are three kinds of post-doc jobs-i) National level fellowships (such as Hubble, Einstein, Sagan, Giacconi, Jansky, NSF, NASA, NRC etc.) ii) Institutional fellowships such CfA, Clay, Menzel (at CfA), CCAPP (at Ohio State), TABASGO (at UCSB), KIPAC (at Stanford) etc. and iii) personal post-docs. I shall NOT apply for the institutional fellowships. They encourage you if you ask but that doesn't mean anything. These are very competitive and unless someone in that institute is telling you specifically to apply through one of these fellowships it's usually not going to work. I shall apply for one of the prestigious national fellowships. These are also very competitive but i) there are many awards per fellowships (for example in 2009 there were 17 Hubble fellows and 10 Einstein fellows) instead of just one or two ii) your future research plan gets more weight and so you stand a real chance if you write a really good future research plan. In addition, these give you an early deadline and as a result your research statement, CV, reference letters etc. are ready within, say, Nov 1st and your next applications will be much easier.

A special note about the NASA postdoctoral fellowships. There are some fellowships (called NASA Post-doctoral Program or NPP) where you need to write a 15 page future research statement and the full application is also very elaborate. But if you can go through this process, you stand a better chance of getting these because i)many applicants are discouraged by the elaborate application ii)the future research statement gets a lot of

weight and so if you don't have many papers or a lot of experience, your statement may make up for that. In some national labs, only American citizens may apply. That may be good for you depending on whether or not you are a citizen.

Now let's talk about the main class of applications, i.e., the post-docs supported by someone's personal funding. There is a dilemma in these applications. On one hand, I want to apply for as many positions as possible to increase my chance. It's not impossible to apply for ~30 positions where the ad was somewhat connected to your research. On the other hand, applying carefully to ~30 jobs take up a lot of time and it may not be worth it. By "carefully", I mean tailoring my research statement in accordance with the specifications of the job. What I decided to do is the following. I shall make a generic research statement (about 2 pages of text plus a few figures, may be) and a generic email. Then I'll send that to every potential employer in AAS who may be interested in my expertise (all of those ~30 jobs). I shall not tailor these. I shall hope that if any of those employers are really looking for someone like me, he/she will contact me after looking at that generic application. There will be a few jobs (1-5) depending on your field of expertise and luck where the employer is looking for exactly what you did (the job description looks like your CV!) For these jobs, I shall tailor my research statement, tailor my email and do it as good as possible. I shall call them and even ask them if I can go and give a talk at my own expense. If anyone from the other 30 jobs actually contact me I'll do the same for them, too. That way I'm covering a lot of the sky and at the same time I'm going deep in some (potentially interesting) regions with the minimum amount of time!

Some general comments: it's immensely helpful to give talks at as many places as possible. It's the best way to let people know that you exist. It's hard to achieve. It's hard to be brave enough and just give a talk at a random institution. But it helps. So you have to weigh between your fear and your gain. Going to as many conferences as possible in the last two years of your grad school is very useful in this respect. Going to other relevant talks in other Astronomy/Physics departments in your city and asking questions at the end is also useful for the same reason. If you are a face or even a voice to your potential employer, that is much better than just a few pieces of paper.