Career Paths for Astronomers

...and other closely related majors

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Pre-MAP Seminar Talk
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"So, what are you going to do with that?"

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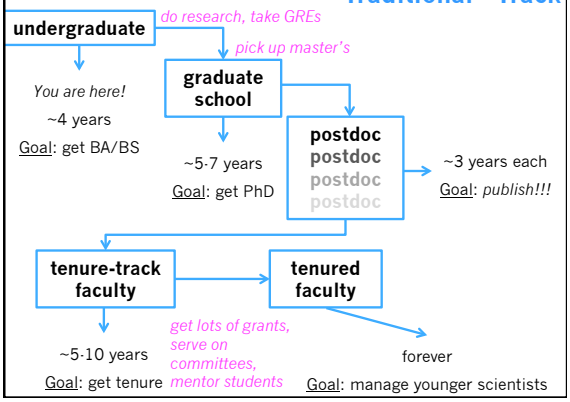
Two Broad Categories

"traditional" career track

"alternative" career track

"Traditional" Track



"Traditional" Track

undergraduate

↓

graduate

apply to a bunch of schools
"reach," good fit, "safety"
visit schools you're accepted to
typically not your undergrad institution

postdoc

tenure-track faculty

tenured faculty

It's hard to say exactly how many astronomy PhDs reach the "default" end goal, but it's something like 10-20%.

So... Consider Alternatives

- **The good news:** you have a lot of transferrable skills, and there are a lot of things you can do with your degree
- **The bad news:** academics train academics
  - you will need to be pro-active about your interests

Science Policy

- "Science lobbyist"
- Requires a Ph.D. ← Might be exceptions...
- Must be U.S. citizen ←
- Work in a congressional office or on a committee staff advising politicians
  - global warming, energy policy, defense technologies, medical policy, pollution, communications technologies, etc.

Science Policy

How to start grooming your resume:

- Involvement with student or state government
- Applying your science to public outreach
- Leadership positions in clubs, etc.
- Get comfortable writing and speaking about your science!

Science Policy

- Lots of fellowships exist to help you get your foot in the door
- Most require a Ph.D., but there are some internships for undergrads too!

Science Policy

American Association for the Advancement of Science
http://www.aaas.org/programs/science_policy/

American Astronomical Society John Bahcall Public Policy Fellowship
http://aas.org/policy/John_Bahcall_Fellowship.php

American Institute of Physics Science Policy Fellowships
http://www.aip.org/gov/

American Physical Society Congressional Science Fellowships
http://www.aps.org/policy/fellowships/congressional.cfm

Berkner Space Policy Internships
http://sites.nationalacademies.org/SSB/ssb_052239

Teaching

High school and/or community college

- Requires a master's degree
- Often have to teach part-time for a while before a full-time position opens up
  - right now, the CC job market is painfully bad
- Research experience a bonus, although usually not considered a requirement

Teaching

Teaching College

- Requires a Ph.D.
- Often have to teach part-time for a while before a full-time position opens up
- Research experience can be a requirement

Teaching

How to start grooming your resume:

- Get teaching experience anywhere you can!
  - Work as a grader or at a tutoring center
- Involvement with programs that benefit underrepresented students are always great (stay active in Pre-MAP!)
- Volunteer with outreach programs
- Start looking for part-time (adjunct) teaching positions early

Teaching

Seattle Community Colleges
Central, North, South

Shoreline Community College

Edmonds Community College

Green River Community College

Cascadia Community College

plus dozens more!

Observatory Support Staff

Observing Technician

- Bachelor's/master's degree
- Ground-based observatories: live near an observatory, help remote astronomers operate the telescope, maintain instruments, electronics, etc.
- Space-based observatories: schedule observations, remotely control the telescope, maintain automatic processing scripts

Observatory Support Staff

Instrumentation

- Typically need a master's degree
- Build the instruments that astronomers use! Spectrographs, optics, filter wheels, etc.
- Work in a machine shop, electronics lab, or cryo lab
- Great for engineers with an interest in astronomy (or astronomers with an interest in engineering)

Observatory Support Staff

Public Relations officer

- Observatories, universities, and national labs need people who understand the science but are also good communicators to handle press releases and bring science to the public
- Journalism/writing experience a big bonus

Observatory Support Staff

I've known lots of UW students who have gotten these sorts of jobs!

- Apache Point Observatory (APO) obs. tech.
  - had a master's degree in physics, specialty in optics, helped design optics systems for different instruments
- Chandra X-ray Center mission planner
  - had bachelor's degrees in physics/astronomy, takes accepted observing proposals and plans observations, get data to observers

Observatory Support Staff

How to start grooming your resume:

- Get involved with Manastash Ridge Observatory (MRO)
- If possible, go on observing runs at APO or get experience reducing space-based data
- Talk to Joe H. about his astro-engineering group!
- Take your resume to a AAS meeting and hand them out to any vendor who will take them

Data Scientist

Tech-driven companies acquire a lot of data

- typically need a PhD (sometimes masters), with some expertise in: databases, machine-learning, statistics, data storage, etc.
- extract trends and patterns from huge quantities of data
- make predictive models
- explain trends to non-experts (businesspeople)

Data Scientist

How to start grooming your resume:

- learn computer science
- eScience Institute at UW offers lots of classes and information
- look for research projects that specifically use complex computer models or tons of data
- learn languages that companies use (R, Python, Java, C/C++, Tableau products)

Other Ideas

Science Writing

- Writing for scientific magazines (*Astronomy*, *Scientific American*, *Sky & Telescope*, etc.)
- Press releases for research labs, universities, observatories, etc.
- Science fiction, popular science books, etc.

Start a blog! But don't quit your day job...

Other Ideas

Medical Data Analysis

- Analyzing the results from clinical trials
- Data mining, managing huge databases of information - bioinformatics
- Medical equipment engineer or technician

Take a couple biophysics classes!

"Alternative" Tracks