SLIDE #1

After Your PhD or Postdoc
Five Career Options and the Strategies You Need to Implement Them

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SLIDE #2

Outline

• Higher education in the United States

• Five possible careers paths
  1. A tenure track academic position at a four-year institution
  2. A non-tenure track academic position as an adjunct or lecturer
  3. A teaching position at a community college
  4. An administrative/research position in higher education
  5. A professional position in industry, government, or on your own.

• The "Three-Way Stretch" Preparation Strategy

• Tomorrow's Professor eNewsletter
Higher Education in the U.S.

Numbers

~ 4,600 post secondary institutions

~ 20,000,000 students

~ 1,540,000 faculty

Higher Education in the U.S.

Types of institutions

— Community Colleges
  • ~1,800 institutions with ~ 374,000 faculty
  • Santa Monica City College

— Liberal Arts/Baccalaureate
  • ~630 institutions with ~ 95,000 faculty
  • Occidental College

— Master’s Granting/Comprehensive
  • ~ 660 institutions with ~ 240,000 faculty
Disciplines and departments are ranked into hierarchies, with the traditional academic specialties in the arts and sciences along with medicine and, to some extent law, at the top. The 'hard' sciences tend to have more prestige than the social sciences or humanities. Other applied fields, such as education and agriculture, are considerably lower on the scale. These hierarchies are very much part of the realities and perceptions of the academic profession.

*Philip Altbach, professor of higher education, Boston College*
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Five possible careers paths

1. A tenure track academic position at a four-year institution
2. A non-tenure track academic position as an adjunct or lecturer
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Five possible careers paths

1. A tenure track academic position at a four-year institution

- The *sine qua non* of academic careers for over a hundred years
- Assistant 3 yr, renewal for 3 yr promotion and tenure at end of 6 yr
- Serve on academic councils and other governing committees and are the pool from which department chairs, deans, provosts, and presidents are drawn.
- Part of compensation package – trade off in greater salary. Holloway quote
- It is also the case that in these difficult budgetary times employees everywhere become more risk averse and show a greater willingness to accept excessive or inappropriate demands from management. This is true in higher education as well, making tenure protection all the more important.

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Five possible careers paths

2. A non-tenure track academic position as an adjunct or lecturer

- In 1975, almost 57 percent of faculty were tenured or on the tenure track,
- Today about 31% on tenure-track or almost 70% on non-tenure track
- fixed-term, limited-term, contract, lecturer, contingent, consulting – mean non-tenure track
- Budget problems are main reason. Also flexibility
- negative impacts include such things as a loss of community, lack of shared sacrifice, and the difficulty of creating a long term vision.
- Benefits to not seeking a tenure track position.
- What other things you might do if you were not worrying about getting tenure,
  - more time teaching
  - research at your own pace,
  - taking advantages of long-term opportunities in other countries,
  - considering possibilities outside academia concurrent with faculty job
  - more things with your family and friends.
- Stanford Ed Carryer example
- for him, and it gave her a full-time career at a prestigious university.
- Research Professor, or Senior Research Scientist. – PI status needed
- According to Tower, there are three kinds of Ph.D. and postdoc candidates who prefer non-tenure track jobs. They are:
(1) The strategists, those who are willing to trade tenure track for a better location, more prestigious institution, opportunities for spouses and quality of life,

(2) The pragmatists, those who need a job now and can't wait for the unlikely possibility of a tenure track job later, and

(3) The nonconformists, those who just like the freedom to work at their own pace, to switch employers as needed, and who are simply not impressed with the idea of tenure.

### SLIDE #9

**Five possible careers paths**

3. A teaching position at a community college

- Traditionally Ph.D.s and postdocs have not considered community college positions because of the
  - perceived lower prestige,
  - little or no research opportunities,
  - higher teaching commitments,

- In the United States, 22 percent of all higher education faculty and 21 percent of all higher education students are at two-year community colleges.

- 1,600 CC
- 8.4 million CC students.
- 340,000 CC faculty
• Between 1990 and 2010 student enrollment in community colleges increased by 65 percent and degrees and certificates awarded increased by 127 percent.

• Most faculty at community colleges have master's degrees; however, 20 percent have Ph.D.s and that percentage is increasing.

• Total faculty at two-year institutions is projected to increase significantly in the next 10 years.

• The traditional mission of community colleges has been to offer lower division courses leading to an associate in arts (AA) degree followed by transfer to a four-year institution, and to prepare for vocational careers that are not part of a 4-year institution.

• A number of universities are responding to interest by offering special training and even certificates for their graduate students who want to consider community college faculty positions.

• The main thing to keep in mind is that the sole focus at community colleges is in teaching and learning and in this sense it is different from liberal arts schools and state colleges where some kind of research/scholarship is expected.

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Five possible careers paths

4. An administrative/research position in higher education

* Administrators, student service providers, center directors, and a host of other staff positions where a doctorate has cachet and other advantages but which are not on the academic track.

* A significant increase in non-faculty professionals, most with doctorates of one kind or another, in important support roles at most colleges and universities.
* Many of these professionals are taking on some of the duties previously provided by faculty.

Examples:

- Government Technical Point of Contact, Automotive Research Center, University of Michigan, Peter Schihl, Ph.D., P.E., engineering
- Associate Vice-Provost for Entrepreneurship, University of Arkansas, Carol A. Reeves, Ph.D., management science
- Managing Director, Global Climate and Energy Project, Stanford University, Richard Sassoon, Ph.D., physical chemistry

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Five possible careers paths

5. A professional position in industry, government, or on your own.

Research positions outside academia in government or industry.

Ph.D. may well be required. Some of the research can be quite basic, particularly at government laboratories, but in most cases it is more applied with emphasis on the D in R&D.

Often a person who starts as a researcher in these organizations will move to a more senior position as a director or manager.

Three examples are:

- Planetary Protection Officer, NASA, Cassie Conley, Ph.D., biology
- Chief Technical Officer, QuantumScape, Tim Holm, Ph.D., physics
- Senior Research Engineer, Pacific Northwest National Laboratory, Whitney G. Colella, Ph.D., mechanical engineering

The third case involves Ph.D.s who seek positions outside academia in non-research positions such as science policy analysis, science writing, and financial management. In other words much like the first case only outside academia. Here are three examples:

- Editor, Science Careers, Science Magazine, Jim Austin, Ph.D., physics
• AAAS Science and Technology Policy Fellow, Melanie Roberts, Ph.D.
  neurobiology and behavior
• Patent Agent, Brinks, Hofer, Gilson & Lione, Mindy N. Rittner, Ph.D., materials
  science and engineering.

As noted above, there is a much greater awareness of the need and desire to consider non- 
teaching/research careers for Ph.D.s and postdocs and so it should be easier to gain 
acceptance for considering these options from your Ph.D. advisor/postdoc supervisor as 
well as student and postdoc colleagues.

Seek out information on past graduate students and postdocs

Look around your current institution for individuals with doctorates who are the staff,
not on the academic track, and ask for time to meet with them to find out more about 
what they do and how they came to their particular position.

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The “Three-Way Stretch” Preparation Strategy

• Strategy applies to all career stages
  • Undergraduate student
  • Graduate student
  • Postdoc
  • Starting out professional
  • Mid-life professional
  • Senior professional
  • Retired professional

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The “Three-Way Stretch” Preparation Strategy

• Start now!
• Get out of the lab!
• Enjoy the process!
The “Three-Way Stretch” Preparation Strategy

• Breadth-on-top-of depth
• Next-stage
• Multiple option

Places your developing expertise in a broad context allowing you to see connections between your work and that of others, to develop related areas of depth, and to make a more compelling case for your own contribution.

“T” or multiple table legs metaphor

Examples:

(1) choosing advisors – major and complementary in terms of experience, adjacent fields, personality, style, influence among colleagues, contacts for future employment and so on.

(2) Brian Love – Virginia Tech, now U of M – materials science example from semiconductor packaging to surface science to dental implants to hip replacements.
Enables you to think ahead, look ahead, and act ahead of the stage you (and your future competition) currently occupy and thus not only demonstrate your willingness, but also your readiness, to assume the position you are seeking.

Examples

(1) Your research work as an undergraduate
(2) Your supervision of undergraduates as GS
(3) Writing proposals as GS or PD
(4) Teaching as a GS or PD.

Guy Blaylock, assistant professor of physics at the University of Massachusetts:

As you go from one stage to the next, the role you play changes. As a student I was expected to excel in a specific subject and I was judged by my individual contribution. As a postdoc I was expected to be more of a team player, to contribute to the researchers around me and review their papers, as well as run a complete project and write my own proposals. As a professor things changed again and now I have a dozen balls in the air. Given all of this, I strongly recommend that as a graduate student you do some of the work of a postdoc and as a postdoc you do some of the work of a professor. Not only does it make things easier when you get to the next stage, it also separates you from the rest of your competition.

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The “Three-Way Stretch” Preparation Strategy
Multiple Options

Allows you prepare concurrently for careers in academia, government and industry

Example
Michael Farn – integrated optics – produce fresne (essentially flat) lenses on semiconductor wafer-like materials – new to advisor – so TI became involved –

visits to Dallas – semiconductor folks, infrared detector folks – monthly meetings –

facilitator – brought together people who didn’t talk to each other.

According to Graddy Roberts, Farn's chief contact at Texas Instruments, "If all he did was to bring these two groups together to talk about mutual problems and opportunities, it would have been worth it from our point of view."

But Farn did much more. By placing his research in the context of its possible application to semiconductors and infrared optics (Breadth-On-Top-Of-Depth), bringing together people who needed to deal with the challenges of mass producing such devices (Next-Stage), and making contacts with scientists in a non-academic institution (Multiple-Option), Farn covered all the bases while pursuing research that lead to his Ph.D.

The results of Farn's initial efforts were promising enough that Farn and Texas Instruments wanted to continue their relationship. After graduation, Farn accepted a postdoc at M.I.T. Lincoln Laboratories where he continued his work in integrated optics under a contract partially funded by Texas Instruments.

SLIDE #18
Tomorrow’s Professor Mailing List is sent by-weekly to over 45,000 subscribers, mostly graduate students, postdocs and beginning faculty at over 850 colleges and universities in over 100 countries around the world.

Academia

* New Faculty Reward Structures

* Faculty Learning and Institutional Change

Preparing for Academic Careers

* The Academic Job Talk.

* General Principles For Responding to Academic Job Offers

SLIDE #19

Managing Your Academic Career

* Tenure Tips

* Twelve Suggestions for Optimizing Academic Career Success

Teaching and Learning
The main message here is that you need to start identifying possibilities and examples well before you finish your Ph.D. or postdoc and not wait until the last few months. Some activities simply can't be compressed into a few weeks or even months because they depend on responses of
others that may not share your urgency. Your antenna needs to be tuned to these other possibilities early on so you won't miss at least identifying individuals who cross your awareness either through the media or visits to your institutions. You can always follow-up later with detailed inquiries but only if you have taken note of these people throughout your time as a graduate student and postdoc.