

# **Put Your Degree to Work: Practical Career Strategies for Ph.Ds**



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**June 25, 2007**  
**CEDAR – Santa Fe**



# Why am I here?



then



now

# Why am I REALLY here?

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- **Experience**

- My career path (so far) has been unusual (for a Geophysicist) but highly stimulating and enormously enjoyable
- I benefited from numerous mentors and got lots of good advice
  - Pass some of it along

- **Concern**

- Young S&Es don't get very good career development advice
- Such advice is of greatest value at the START of your career!

- **Prejudice**

- I believe that technically-trained individuals have enormous opportunity to improve the world

# Exploring outside of our own career field can be ...

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**Frightening**  
**Confusing**  
**Amazing**  
**Liberating**  
**Empowering**

# Now the Good news!

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*Young people themselves don't realize how valuable they are with a Ph.D. It means an ability to think deeply, solve problems, analyze data, criticize and be criticized. [Ph.D.s] often don't realize the breadth of what they are capable of doing.*

**Neal Lane (Former Director, National Science Foundation)**

**We possess many of the traits and skills that are of highest value in the “real world”**

# Transferable skills

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1. ability to function in a variety of environments and roles
2. teaching skills: conceptualizing, explaining
3. counseling, interview skills
4. public speaking experience
5. ability to support a position or viewpoint with argumentation and logic
6. ability to conceive and design complex studies and projects
7. ability to implement and manage all phases of complex research projects and to follow them through to completion
8. knowledge of the scientific method to organize and test ideas
9. ability to organize and analyze data, to understand statistics and to generalize from data
10. ability to combine, integrate information from disparate sources
11. ability to evaluate critically
12. ability to investigate, using many different research methodologies
13. ability to problem-solve
14. ability to do advocacy work
15. ability to acknowledge many differing views of reality
16. ability to suspend judgment, to work with ambiguity
17. ability to make the best use of "informed hunches"

*Did you know a Ph.D. teaches you these things?*

# Personal qualities

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1. intelligence, ability to learn quickly
2. ability to make good decisions quickly
3. analytical, inquiring, logical-mindedness
4. ability to work well under pressure and willingness to work hard
5. competitiveness, enjoyment of challenge
6. ability to apply oneself to a variety of tasks simultaneously
7. thorough, organized and efficient
8. good time management skills
9. resourceful, determined and persistent (and able to live on \$2K/month!)
10. imaginative, creative
11. cooperative and helpful
12. objective and flexible
13. good listening skills
14. sensitive to different perspectives
15. ability to make other people "feel interesting"

***Employers in all fields are looking for people with these traits***

# 20 successful PhDs in non-academic careers were asked ...

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*“Of the many skills you developed while in graduate school, which ones are the most valuable to you now?”*

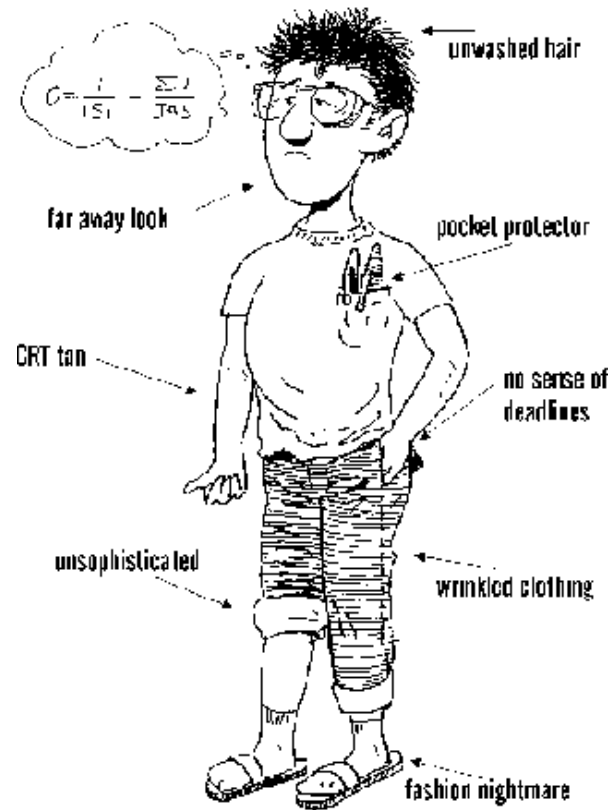
**Finding one’s own path and taking initiative with little assistance**  
**Ability to work in a high-stress environment**  
**Independence**  
**Maturity**  
**Computer skills**  
**Circumventing the rules**  
**Learning to seek out problems and solutions**  
**Ability to persuade**  
**Ability to create**  
**Ability to work productively with difficult people**

**and my favorite:**

**The ability and courage to start something even if you don’t know how yet**

# What image does the PhD conjure?

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# The Curse of Being Smart

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**We have become very highly skilled**



**We tend to value our skills the most**

**We can conceptualize**



**We can conceive of complications**

**We are used to knowing it all**



**We fail to ask basic questions**

**We are intellectually smart**



**We fail to appreciate other forms of smart**

**We are used to being exceptional**



**We don't like to fail**

# Match the Person and the Career

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**Cell Biologist**  
**Chemist**  
**Astrophysicist**  
**Biophysicist**  
**Geologist**  
**English**  
**Plant Biologist**  
**Oceanographer**  
**Geophysicist**  
**Mathematician**  
**Electrical Engineer**  
**Medieval History**

**Science Media Entrepreneur**  
**Congressional Staffer**  
**Financial Analyst**  
**Management Consultant**  
**Rodeo Star**  
**Experimental Physicist**  
**Book Editor**  
**Acquisition Editor**  
**Software Entrepreneur**  
**High School Teacher**  
**Secretary of Defense**  
**Programmer**

# Match the Person and the Career: The Answers

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|                     |       |                            |
|---------------------|-------|----------------------------|
| Cell Biologist      | _____ | Science Media Entrepreneur |
| Chemist             | _____ | Congressional Staffer      |
| Astrophysicist      | _____ | Financial Analyst          |
| Biophysicist        | _____ | Management Consultant      |
| Geologist           | _____ | Rodeo Star                 |
| English             | _____ | Experimental Physicist     |
| Plant Biologist     | _____ | Book Editor                |
| Oceanographer       | _____ | Acquisition Editor         |
| Geophysicist        | _____ | Software Entrepreneur      |
| Mathematician       | _____ | High School Teacher        |
| Electrical Engineer | _____ | Secretary of Defense       |
| Medieval History    | _____ | Programmer                 |

*They do have ONE thing in common: They're SMART ... like YOU!*

# The 80:10:10 rule

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**How will you grow and gain new skills if you don't invest the time?**

**How will people know of your abilities if you don't tell them?**

# The skills that will REALLY count ...

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Leadership

Persuasion

Humor

Tact

Understanding of Risk and Reward

Understanding of Investment and Return

Organization

Sensitivity

Drive

Perspective

Creativity

**Good News: You can LEARN These!**

*“Give me ten people who have all of these skills and I could do anything”*

# Typical questions asked by PhDs facing an uncertain job market

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“How do I get a job in \_\_\_\_\_?”

“How do I write a resume?”

“What jobs call for my skills?”

“Where is the bathroom? I’m going to be sick!”

**Better questions are:**

What do I enjoy doing and what am I good at?

What are various career like?

What careers and jobs are a good match to my skills, interests, and values?

Who can I talk to?

# Why are these questions better?

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- **PhDs are preoccupied with matching skills and ignore other important factors in choosing a career**
- **PhDs lack information and exposure to other career fields**
- **Career change for PhDs can be harder:**
  - lack of an established pathway
  - fear/anger of getting a degree “for nothing”
  - ignorance/fear of life in the “real world”

**If you don't like what you do for a living, you probably won't be very good at it!**

# Steps in the Career Planning Process

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Career development is a continual process

Career development is part of being a professional



most people think it starts here  
but  
it really starts down here

# Self-Assessment:

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- **Informal methods**  
Initial brainstorming
- **Self-guided methods**  
Interest Exercises
- **Formal methods**  
Exams and Tests  
Career counseling



***Make your neuroses work for you!***

# Initial brainstorming

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- **What do I enjoy doing most?**
- **What do I like most and least about my present career?**
- **What are my values?**
- **What do I like to read?**
- **What organizations or jobs sound interesting to me?**
- **When have I been my happiest at work?**
- **When have I been most unhappy?**

**Career Development Journal**

# Self-guided exercises

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**1. Make a two-column list of everything you can think of that you like and dislike about the academic career, and then assign priorities. What do you learn about your values, interests and skills as they affect the work and workplace?**

**2. If you could live five lives simultaneously, and explore a different talent, interest, or lifestyle in each, what would you be in each of them?**

**3. Think back over the experiences you have had in your life - in the areas of work, leisure, or learning - and pick three to ten that have the following characteristics:**

**a. you were the chief or a significant player**

**b. YOU - ( ± the world or significant others) - regard it as a success: you achieved, did, or created something with concrete results, or acted to solve a problem, or gave something of yourself that you are proud of and are pleased by**

**c. you truly enjoyed yourself in the process.**

**List each of them, write why you consider it a success, and write a paragraph or two detailing the experience, step by step.**

# Formal methods of self-assessment

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**Myers-Briggs Type Indicator Test** - analyzes your beliefs and interests and categorizes you into 1 of 16 personality types. Used to understand how individuals may work well or not well together.

**Strong Interest Inventory** - analyzes your interests and skills and compares them to representative people in a variety of careers and work environments.

**Career Beliefs Inventory** - assesses the sources of anxiety about jobs, careers and career change.

**Skills and Values Card Sorts** - enables you to rank and examine the types of activities you find fulfilling and the skills you feel strongest in.

**Your school's Office of Career Services has some of these (and many more)... for free**

# Exploring the World of Work

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## 1. Keep your eyes and ears open

- read the newspaper
- talk to people
- browse the Web
- hear outside speakers

## 2. Build your skills base

- stay conversant with the latest technologies
- attend workshops
- take a class or two outside your area

## 3. Build your NETWORK

# Networking: How most people get their jobs

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## Networking is:

Developing relationships with people who share your professional or personal interests

Alerting them to your career goals and abilities

## Networking is not:

Tiresome schmoozing for a job

Restricted to the slick and superficial

**As a PhD you have been networking throughout your career, you just probably didn't realize it!**

# Who is my Network?

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Anybody you know and feel comfortable talking to  
can be part of your Network:

Schoolmates

Recent graduates

Collaborators

Friends from High School or College

Past bosses and colleagues

Family

People you meet at seminars, conferences and workshops

Other people who are looking for jobs

and

Anybody they know

**The most valuable in your network are those already established in the  
career field that interests you and who are willing to give you help**




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“The best preparation you can make toward the goal of having an [academic] career is to find yourself a “research aunt or uncle,” someone with little or no authority over you, who has enough experience to act as a sounding board and giver of accurate advice. Do not be shy about getting to know the people outside your advisor’s realm.”

Peter Feibelman, *A Ph.D. is NOT Enough!*

# Another Resource: ScienceCareers.Org





Info **RESOURCES FOR THE NEXT GENERATION OF SCIENTISTS**

**GrantsNet**  
FREE ACCESS TO FUNDING DATABASE


**JobsNet**  
FREE ACCESS TO JOB LISTINGS

**Salary Survey**  
FREE ACCESS

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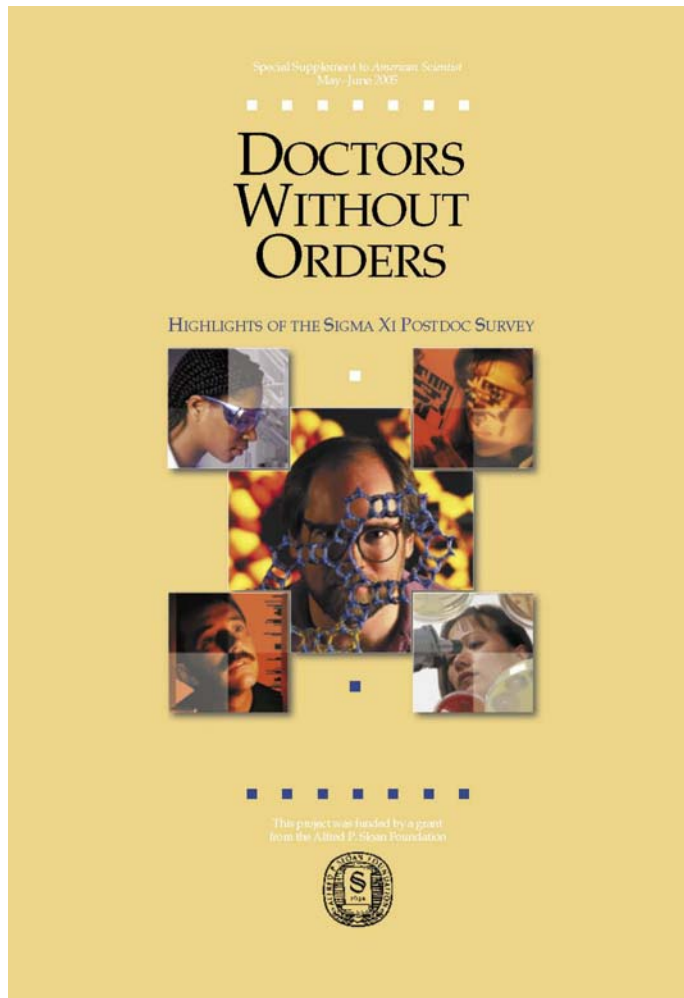
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[www.nextwave.org](http://www.nextwave.org) (now merged with ScienceCareers.org)

# Exploring the Postdoc Path



**The first comprehensive study of postdocs in the US, released April 6, 2005**

**Interesting findings include:**

**Most post-docs report being satisfied with their experience**

**Majority of post-docs are non-citizens**

**Slightly more women than men**

**Average salary = \$38,000**

**But the most important conclusion:**

***The more structure and oversight in the post-doc program, the better the outcome for post-docs***

**<http://postdoc.sigmaxi.org/results/>**

# **Focusing on Specific Opportunities: Becoming an Insider on Every Job**

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*Research your career field of interest as thoroughly as  
you research your science*

*Stalk your next job like a big game hunter*

## **Techniques for getting on the inside track:**

- **Informational Interviewing**
- **Interning**
- **Volunteering**
- **Part-timing**
- **Moonlighting**
- **Consulting**
- **Incorporating the outside world in your research**

# Informational Interviewing

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*“Going directly to places where you would like to work is six times as effective as mailing out résumés and cover letters.”*

Richard Bolles- What Color is Your Parachute

## Advantages to Informational Interviewing:

- you are in control
- you can ask sticky questions that wouldn't be appropriate in a job interview
- you can see people in their actual work environment
- you can get feedback and advice
- you can make sure the work environment is right for you
- you can gain visibility
- you can practice being perfect for when it really counts

# Informational Interviewing: How do I get started?

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- Get a point of contact through your network or the career planning and placement center you are using
- contact the person by phone or e-mail, explain that you want to learn more about the career field and that you got their name from \_\_\_\_\_. They may refuse or say that another person would be more appropriate. If so, contact that person and move forward.
- prepare some of your questions in advance - don't waste time: a typical informational interview is only 30 minutes. People do NOT enjoy answering questions that could or should have been investigated elsewhere
- questions asked usually pertain to:
  1. Required background and training
  2. Specific information regarding the career
  3. Personal experiences
  4. Advice
  5. Future trends

**If you do well the person you talk to may end up being a useful part of your network**

# Informational Interviewing: Some final advice

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- **Treat it like a formal interview for a job:**
  - do your homework
  - think carefully about what you want to learn
  - prepare questions
  - act professionally
  - write a thank-you note
- **Do not treat it like a formal interview for a job:**
  - do not ask for a job, even indirectly
  - do not speak with one person and assume you have the whole story

# Why are people willing to be bothered?

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- People like to “give back”
- People like talking about themselves
- Finding fresh talent is critical to an organization’s success
- Information transfer is a two-way process  
they may learn something important from you

# Becoming an insider through ...

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- **Internships**
- **Volunteering**
- **Part time work**
- **Moonlighting**
- **Consulting**
- **Incorporating outside topics into your research**

# The Science of Résumés and CVs

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## True or False:

**The purpose of a résumé is to get you a job**

**A résumé is a description of all your past achievements and work history**

**An individual résumé can be sent out to many different employers without alteration**

**CVs and résumés are basically interchangeable**

**And now for the answers ....**

# The answers:

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**The purpose of a résumé is to get you an INTERVIEW, not a job.**

**A résumé is a description of those past experiences that are MOST relevant to the position being sought. A resume is as much about where you are going as it is where you have been.**

**You should adapt your résumé for each specific job opening and you should USE THE WORDS IN THE JOB DESCRIPTION as much as possible.**

**CVs and résumés are totally different documents and should NOT be used interchangeably. If you are uncertain whether an employer wants a CV or a résumé ASK THEM!**

# A methodology for answering questions: STAR

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## Situation/Task:

Describe the situation you encountered.  
Give the background, and its relation to you.

## Action:

Describe what YOU did to address the situation  
or solve the problem.

## Result:

Describe the result of your actions.

# Negotiating an offer

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**1. Delay the salary negotiations as long as possible - try not to get locked into a salary before you are offered a job**

**2 Value the offer fully. Consider these other parts of compensation:**

- health care
- schedule of raises
- bonus plan
- commission plan
- stock option
- pension plan
- profit sharing plan
- employee education/tuition reimbursement
- stability of company
- dependent tuition reimbursement
- paid parking
- car provided
- vacation
- sick leave
- maternity/paternity leave
- flex time/alternative work schedule
- anticipated work hours
- relocation allowance
- potential for advancement

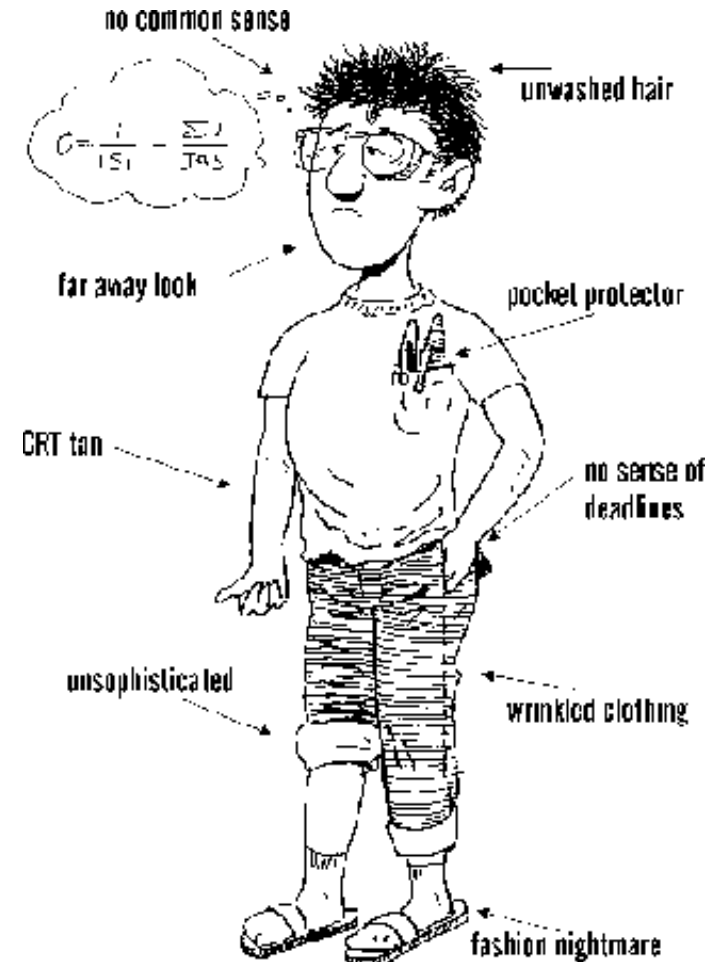
**Get it in Writing!**

# Perceptions and Realities: Overcoming Stereotypes



According to business people, academics/scientists are:

- simple minded about money
- impractical about time
- no sense of deadlines
- socially passive
- value ideals as absolutes



Other potential perceptions to overcome:

- hermit vs. leader
- arrogant vs. team player
- rebel vs. organizer
- problem person vs. solution person

# Don't forget your own misconceptions...



# Myths and Realities of the Modern Job Market

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**Myth 1# Find a job that matches your skills**

# Myths and Realities of the Modern Job Market

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**Myth 1# Find a job that matches your skills**

**Reality #1: SKILLS, VALUES and INTERESTS are all critical aspects of finding a fulfilling career.**

*“If you are applying for a job for which you are fully qualified, you’re applying for the wrong job!”*

# Myths and Realities of the Modern Job Market

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**Myth #2: Employers care only about technical skills**

# Myths and Realities of the Modern Job Market

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**Myth #2: Employers care only about technical skills**

**Reality #2: Employers care about lots of things in addition to skills:**

**Personality**

**Degree of Fit**

**Learning Ability**

**Leadership**

**Communication Skills**

**Persuasion Skills**

**Drive**

***“I can teach a smart person how to do all this stuff - I can’t teach an employee to think, act on their own, or CARE.”***

# Myths and Realities of the Modern Job Market

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**Myth #3: You should map out your career trajectory many years into the future**

# Myths and Realities of the Modern Job Market

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**Myth #3: You should map out your career trajectory many years into the future**

**Reality #3: Serendipity, unplanned detours, and “setbacks” are inevitable. The people who can exploit chance opportunities, explore new areas and make the best of setbacks tend to be happier and more successful.**

*“Five years ago, I would never have predicted that I would end up here!”*

# Some final thoughts

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- 1. Job hunting in the new century involves personal connections, chance encounters, and random opportunities.**
- 2. The more people you know, the greater your "job cross section."**
- 3. Getting a job in science requires the same job hunting skills and techniques as any job (including getting a job in academia).**
- 4. Thinking about finding a job is stressful, demoralizing and produces anxiety. Actually doing something about finding a job is liberating, empowering and fun.**
- 5. The more you enjoy what you are doing the better you'll do it.**
- 6. You can serve science, your community, and your country in many different environments - don't be afraid to consider a non-traditional career path just because it is unfamiliar to you, your advisor, your department or your family.**

## Further information and resources

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- **Peter Fiske's new column at [ScienceCareers.org](#): "Opportunities"**
- **Engineering Scientists – a blog on science employment trends, public policy and economics (with Dr. Geoff Davis) – at <http://blog.phds.org>**