Why am I REALLY here?

- **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.

Why did I become a scientist?

- I loved exploration
- The natural world fascinated me
- My father was a scientist (and seemed to have a fun career)
- I wanted to do something adventurous and meaningful
- I wanted to have an impact on the world (and be recognized for it)

What you do for a career is a deeply personal thing

- Influenced by your parents and family
- Influenced by your upbringing
- Influenced by your personality and temperament
- Influenced by random encounters and chance opportunities

Becoming familiar with your own "story" is the first step in charting your career
The world outside of academia has evolved...

Old
Go to school for skills
Job Security = Good
Wages = Reward
Infrastructure = Biggest Asset

Seniority (mattered most)
Guilds (were everywhere)
Risk Aversion (was the smart thing)
Passivity (was the safe bet)

New
Life-long learning
Risk-taking = Good
Stock Options = Reward
IP = Biggest Asset

Experience (matters most)
Independents (are everywhere)
Risk Management (is the smart thing)
Entrepreneurialism (is the safe bet)

Unfortunately, much of academia reinforces ...the OLD

The need for PhDs to think broadly about themselves is not new...

“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. [PhD-trained graduates] often don’t realize the breadth of what they are capable of doing.”

Dr. Neal Lane
(Former Director, National Science Foundation)
“Producing the Finest Scientists for the 21st Century”
Science 4, November 1994 741-743

PhDs possess many of the traits and skills that are of highest value in the "real world"
Transferable skills

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 Science degree teaches you these things?

Personal qualities

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 ...

“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 “Physics PhD” conjure?

Employers in ALL sectors are hungry for people with these skills and qualities
The Curse of Being Smart

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 fear being the “dummy”
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

Cell Biologist  →  Science Media Entrepreneur
Chemist  →  Congressional Staffer
Astrophysicist  →  Financial Analyst
Biophysicist  →  Management Consultant
Geologist  →  Rodeo Star
English  →  Experimental Physicist
Plant Biologist  →  Book Editor
Theoretical Chemist  →  Chancellor of Germany
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!

Match the Person and the Career: The Answers

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

The 80:10:10 rule

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?

“Opportunities are seldom labeled”
- John Shedd

The skills that will REALLY count ...

Leadership
Persuasion
Humor
Tact
Understanding of Risk and Reward
Understanding of Investment and Return
Organization
Sensitivity
Drive
Perspective
Creativity

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

Typical questions asked by Science grads facing an uncertain job market

“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?

Good News: You can LEARN These!
Why are these questions better?

- Scientists and engineers (S&Es) are preoccupied with matching skills and ignore other important factors in choosing a career
- S&Es lack information and exposure to other career fields
- Career change for S&Es 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

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:

- Informal methods
  - Initial brainstorming

- Self-guided methods
  - Interest Exercises

- Formal methods
  - Exams and Tests
  - Career counseling

Make your neuroses work for you!

Initial Brainstorming

- 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?

Self-Guided Exercises

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.

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Formal methods of self-assessment

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.

StrengthFinder - identifies the things you are BEST at (so you can play to your strengths)

What is a strength?

- The ability to provide consistent, near perfect performance in a specific given activity
- An activity that leaves you feeling strong
- A Strength is produced when a talent is refined with knowledge and skill

IDPs

- Explore how your skills interests and values map onto some common PhD career paths
- Set goals for yourself
- Keep you and your advisor in synch

PhDs end up in larger companies with higher salaries

Zolas et al., 2015

Copyright 2019 – Peter S. Fiske
Want a raise? Go to industry!

Exploring the World of Work

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: Essential Career Tool #1

Networking is developing relationships with people who share your professional and personal interests, and alerting them to your goals and abilities.

Networking: How most people get their jobs

Networking is not:
- Tiresome schmoozing for a job
- Restricted to the slick and superficial

As a young scientist you have been networking throughout your career, you just probably didn’t realize it!

Who is my Network?

Anybody you know and feel comfortable asking a specific favor from 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
- Anybody they know

70% of your business connections will be made from “friends-of-friends”
**Asking a favor**

- Please introduce me to __ who is in your network
- Please forward my (resume, latest reprint, etc.) to...
- Please provide a reference for me if __ calls
- Can you tell me the latest about ___?
- Can you send me a copy of ___?

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- Past bosses and colleagues
- Family
- People you meet at seminars, conferences and workshops
- Other people who are looking for jobs
- 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.

**Working a Meeting**

- Identify who you want to connect with while at the APS meeting
- Reach out to them via e-mail
- Introduce yourself after their talk or during their poster
- Be clear about what you are seeking
  - Time frame for your transition
  - Introduction to someone else
  - Advice
- Follow up with a brief thank you and next steps
- Visit the exhibits booths
  - Chat up people there – what do they do for their company?
  - What are the areas of growth for their company in the next 12 months?

**Your E-persona**

- Facebook – for friends
- Linked In – for colleagues and professional friends
- Your/your group’s website
  - Post your papers
  - Post your bio
  - Don’t post your CV
- Vanity Google

You can link to me at Linked In (Peter Fiske – Put Your Science to WORK)

“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!
What do you want your image to be?

- What professional face do you want to project?
  - What are the consequences of choosing one part of your professional “façade” over another?
- What would a potential funder think when viewing your profile?
- What would a potential employer think when viewing your profile?

LinkedIn Etiquette

Hi Peter,

I’d like to connect with you on LinkedIn.

Fawaz Nasser
MITAS Reservoir Engineer at Maersk Oil

Accept
View Profile

LinkedIn Etiquette

Hi Peter,

I hope you’re doing good. I have great news from you last week at University of California. Thanks for your way thought proving talk.

I would also like to add you to my professional connection. Hope to see you again.

Thanks,

Kind regards,

Ahmed Sid

LinkedIn Etiquette

Hi Peter,

I just wanted to take a moment to thank you for your Business culture and effectiveness talk you have last Tuesday. I found it very interesting and plan to pick up a copy of ‘Put your science to work’ once I get back to the UK.

I have taken your advice regarding building a stronger online persona and have added a short summary to my LinkedIn and expanded some of my work experience sections which were severely lacking before. If you had a moment to have a quick look at my profile, I would very much appreciate any critique you would be able to offer.

Kind regards,

Jonathan Limott
Rules to Link By

- **Never Go Generic** – when sending invitations, cordially explain the connection and motivation
  - Don’t use the automatic “link-to-everyone-in-my-contacts-list”
- **Be timely** – If you are going to seek a Link – do it within the first 24 ours of meeting the person
- **Have a goal in mind**
- **Establish rules and stick to them**
  - Fiske’s rules:
    - Always accept invites from people I have worked with, met in person, spoken to on the phone, had an exchange with, or students from one of my classes
    - (Almost) always accept invites from people not in the above categories who provide a cordial and clear explanation for why they want to Link

How to get a meeting with a busy person

- **Be persistent**
- **Make it easy for them**
  - “I will come to your office/home/wherever…”
- **Offer them something:**
  - “I’d like to have coffee with you and pick your brain… In exchange, I will tell you everything I know about ___”
- **Thank them**
  - … and follow up a few months later with an update (very sticky!)

Constructing a bio

- 1 paragraph
- 3 paragraphs
- 1 page

Business Cards

- Get a PROFESSIONAL looking card (spend the $)
- Talk to your Departmental Secretary or Campus Bookstore about logo and printing
  - 500 is usually the minimum
- Check out scannable versions

Getting Out There: 2 programs at U.C.

- **PIEP** – Postdoc Industry Exploration Program
  - Monthly day-long visits to local technology companies
  - Face-to-face meetings with management
  - Tours of the facilities
- **BPEP** – Berkeley Postdoc Entrepreneurship Program
  - Postdocs are seeking advice about commercializing technology and starting their own companies
  - Monthly evening workshops
  - Network and resource center
  - Day-long summer workshop

Biography for Dr. Peter S. Fiske

Dr. Peter S. Fiske is a postdoc in chemical engineering at the University of California Berkeley. Peter earned his PhD in 2021 and is working on developing new materials for energy storage and conversion. Peter is also an active member of the Society for Technical Thermodynamics and has published extensively on the subject. He is currently working on a new project to develop a novel method for producing sustainable energy. Peter is also a member of the UC Berkeley Postdoc Network and has been instrumental in organizing several events for postdocs across the university. Peter is a strong advocate for diversity and inclusion in science and is dedicated to mentoring the next generation of scientists.
Focusing on Specific Opportunities: Becoming an Insider on Every Job

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

“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

Step 1: Identify people you want to speak to

- What companies, organizations or jobs interest you?
- Where are people using similar tools or techniques to what you are using?
- Where (geographically) are you interested in working?
- What trends or fields are you interested in learning more about?
- What questions do you want to answer?

Goal: Arrive at a short list of organizations or people to focus on

Step 2: Connecting to specific people

- Who do you know at your target organizations?
- Who do you know who knows someone at your target organizations?
- Who are these people, and where do they sit in their organization?
- What other things possibly connect you to these people?
- Get their e-mail address

Goal: Have a specific plan for reaching out to each person with a request for an informational interview

Step 3: Make the request

- Reach out to the individual directly by e-mail
- Have your “friend-in-common” make a WARM introduction by e-mail
- Explain clearly who you are and what you’d like to learn and talk about
  - Promise them no more than 30 minutes, but allow them to expand the agenda
- Make it as easy for them as possible
  - “I would love to come to your office when convenient, but can also meet you for coffee nearby...”
- Be pleasant but persistent
  - Busy people are busy
  - Professional, friendly persistence is a GOOD thing

Goal: Time and place for your interview

Step 4: Prep them and yourself

- Continue to research the person
- Send them a short bio about yourself
- Ask if it would be possible/helpful/convenient to meet others while you are there
- Offer to give a technical talk, if appropriate
- Consider how you will dress and logistics for the interview
- Think more about what you want to learn and prepare questions

Goal: Maximize the value of their and your time
Step 5: Have a GREAT interview

- Great first impression
  - Good handshake
  - Make eye contact (color of their eyes)
- Roll through your questions, but follow your instincts
- Be mindful of time and check in when you’re close to the scheduled end
  - Many Info interviews can run long if additional “connection” is established
- Thanks them, and be clear on any possible follow-up
- Get their e-mail address

**Goal:** Leave them with the impression that you are smart, outgoing, curious and interested in their work

Step 6: Follow-up and “anchoring”

- Thank them by e-mail for their time
- Complete the follow-up items you discussed
- Make an appointment on your phone for 3 months time:
  - E-mail them an update – and thank them again!

**Goal:** STICK in their minds as a positive, thorough, proactive and polished technical professional: make them a new member of your network

Informational Interviewing: Some final advice

- Treat it like a formal interview for a job:
  - do your homework
  - think carefully about what you want to learn
  - prepare questions
  - act professionally
  - thank them graciously
- 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?

- People like to “give back”
- People like talking about themselves
  - It beats working for half an hour!
- 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 ...

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

**Academic job searches can utilize many of these same “insider” strategies**

The Science of Résumés and CVs

**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:

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 résumé is as much about where you are going as it is about 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!

The best resumes…

- The best resumes…
  - Connect clearly with the job being advertised
  - Highlight key accomplishments that are relevant to the position being sought
  - Are clearly laid out, easy to follow

- The best cover letters…
  - Are engaging, direct and well-written
  - Challenge the reader to rethink their preconceived notions of you
  - Explain the gaps and apparent mismatches

A methodology for answering questions: STAR

<table>
<thead>
<tr>
<th>Situation/Task:</th>
<th>Action:</th>
<th>Result:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describe the situation you encountered. Give the background, and its relation to you.</td>
<td>Describe what YOU did to address the situation or solve the problem.</td>
<td>Describe the result of your actions.</td>
</tr>
</tbody>
</table>

Negotiating an offer

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
Can you get the offer raised?

Consider the factors listed below. The more that are true, the greater your flexibility:
• You possess unique abilities
• They have few other candidates for the job
• The search has been going on a long time
• This is a unique position in the organization
• The organization is flexible in general
• You have other offers
• They really need someone soon

In contrast, you will have less flexibility to negotiate salary and benefits if the following are true:
• The job is at an entry level and similar to others in the organization
• The organization is highly structured and rigid
• The organization expects you will take what is offered

Some final advice on interviewing

• Arrive early–give yourself 10-15 minutes to sit and chill out

• Case the joint—if it is in a place you’ve never been before, swing by the day before just to make sure you know how to get there. The assurance of having been there before will help

• Bring along extra copies of your resume

• Give a good handshake—if you are unclear about what a good handshake is, go try out your handshake on your friends

• Make eye contact—one simple technique for ensuring that you have made good eye contact: make a mental note of the color of your interviewers eyes

• Ask questions—it’s better to be clear about the question at the start than to ramble down some tangent

• Be yourself—people tend to do a poor imitation of anything else but

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...

Summing it all up: You must be a T-person

Adaptability, Problem-solving, Drive, Leadership

What your school can give you

What you must create for yourself

Myths and Realities of the Modern Job Market

Myth 1# Find a job that matches your skills
Myths and Realities of the Modern Job Market

Myth 1: Find a job that matches your skills

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

“You always end up overvaluing what you know and undervaluing what is out there in plain sight.”

— Thomas Friedman – The Lexus and the Olive Tree

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

“We hire for attitude and train for skills”

— VP for Product Development – Specialty Chemical Manufacturer

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!”

— Astrophysicist-turned-Financial Analyst

Some final thoughts

Job hunting in the new century involves personal connections, chance encounters, and random opportunities. The more people you know, the greater your “job cross section.”

Getting a job in science requires the same job hunting skills and techniques as any job (including getting a job in academia).

Thinking about finding a job is stressful, demoralizing and produces anxiety. Actually doing something about finding a job is liberating, empowering and fun.

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.
My Nature columns…

COLUMN
Ticket to everywhere

The fossilization of the PhD harms students, employers and science in general, argues Peter Fiske.

My Nature columns…

Nature
February 21, 2013
Page 393