Strategically Navigating Your Early Research Career

Jim Gould, PhD
Director, Office for Postdoctoral Fellows
Harvard Medical School & Harvard School of Dental Medicine
james_gould@hms.harvard.edu
@HMSpostdoc

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Be strategic and act...

Research progress, career advancement, and professional development are not passive processes

I. Envision your endpoint
II. Assess your situation
III. Develop your plan
IV. Accomplish your goals
V. Maintain your progress
Start with the end in mind...

What do you want to do when you grow up?
Understand the Landscape

Where will a biology PhD take you?

A faculty job is an “alternative” career.

At this rate, <8% of entering PhD students will become tenure-track faculty. Yet, 53% rank research professorships as their most desired career.

86,000
current US biology PhD students

720
Leave the US

1,900 to 3,900
foreign-trained PhDs start postdocs

37-68,000
current postdocs

70% (5,800)
Postdoc

30% do more than one postdoc

15% of postdocs get tenure-track faculty jobs within 6 years post PhD.

29,000
current tenured and tenure track faculty

17,000
current bio PhDs doing non-science jobs

22,500
current industry researchers

7,000
current gov’t researchers

25,000
current non-tenure track academic positions

20% get non-tenure track academic jobs within 6 years post PhD.

10% of former postdocs (up from 2% in 2010) consider themselves unemployed.

7 years
average time to degree

37% drop out

9,000
Receive PhDs

30%
(2,500)
Don’t postdoc

Every year, 16,000 students start biology PhD programs

Arrows represent annual fluxes. Circles are total current workforce numbers.

Sources:
1. Science Careers Annual Postdoc Survey (2013) http://geo.is/a/m7VCJ

Unless otherwise noted, NII Biomedical Workforce Working Group (2012)
# Evaluate Your Training

## Research Skills
- Knowledge of Discipline
- Lab & Experimental Skills
- Responsible Conduct of Research

## Transferable Skills
- Communication
- Professionalism
- Leadership & Management

## NPA Core Competencies

<table>
<thead>
<tr>
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<th>Core Competency</th>
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<tbody>
<tr>
<td>1</td>
<td>Discipline-Specific Conceptual Knowledge</td>
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<tr>
<td></td>
<td>Analytical Approach to Defining Scientific Questions</td>
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<td></td>
<td>Design of Scientifically Testable Hypotheses</td>
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<td></td>
<td>Broad-Based Knowledge Acquisition</td>
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<td>Interpretation and Analysis of Data</td>
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<td>2</td>
<td>Professional/Research Skill Development</td>
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<td>Literature Search Strategies and Effective Interpretation</td>
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<td>Experimental Design</td>
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<td>Statistical Analysis</td>
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<td>Data Analysis and Interpretation</td>
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<td>Laboratory Techniques and Safety</td>
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<td>Principles of the Peer Review Process</td>
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<td>3</td>
<td>Communication Skills</td>
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<td>Writing</td>
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<td>Speaking</td>
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<td>Teaching</td>
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<td>Interpersonal</td>
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<td>Special Situations</td>
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<td>Professionalism</td>
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<td>Workplace</td>
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<td>Institutional</td>
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<td>Collegial</td>
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<td>Universal</td>
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<td>5</td>
<td>Leadership &amp; Management Skills</td>
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<td></td>
<td>Leadership-Strategic Vision</td>
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<td>Leadership-Motivating and Inspiring Others</td>
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<td>Management-Project Management</td>
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<td>Management-Data and Resource Management</td>
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<td>Management-Research Staff Management</td>
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<tr>
<td>6</td>
<td>Responsible Conduct of Research</td>
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<td>Conflicts of Interest</td>
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<td>Data Ownership and Sharing</td>
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<td>Publication Practices and Responsible Authorship</td>
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<td></td>
<td>Identifying and Mitigating Research Misconduct</td>
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<td></td>
<td>Research with Human Subjects (when applicable)</td>
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<td>Research Involving Animals (when applicable)</td>
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</table>
Consider Your Desired Skills

• Which skills and attributes will set me apart for my desired career track?
• What skills give me the “most bang for my buck” for a variety of career paths?
• How can I strategically build vital skill sets within and outside the lab?
Appreciate Academia

Pros
- Known landscape
- Compatible training
- Intellectually rich

Cons
- Highly competitive
- Limited positions
- Shrinking funding
## Recognize ALL* Your Options

<table>
<thead>
<tr>
<th>academic options</th>
<th>industry options</th>
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<tbody>
<tr>
<td>Academic Research</td>
<td>IP/Patent Law/Tech Transfer</td>
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<tr>
<td>Academic/Higher Ed Teaching</td>
<td>K-12+ Teaching/Curriculum Development</td>
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<tr>
<td>Biotech/Pharma Research</td>
<td>Government Research</td>
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<tr>
<td>E-Ship/Business Dev.</td>
<td>Student/Postdoc/Faculty Affairs</td>
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<tr>
<td>Consulting/VC</td>
<td>Executive/Academic Administration</td>
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<tr>
<td>Policy/Outreach/Non-Profit</td>
<td>Product Dev./Marketing</td>
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<tr>
<td>Science Writing/Journalism</td>
<td>Clinical Research</td>
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<td>Editorial/Publishing</td>
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<tr>
<td>Regulatory Science</td>
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</table>

*Not ALL careers represented!
Put Your Training in Perspective

The PhD
- Creates opportunity and potential
- Hones critical thinking and problem solving skills

The Postdoc
- Refines research and professional skills
- Develops an independent investigator

The Training
- Select correct problem
- Critical examination
- Thorough analysis
- Eloquent communication

These are desirable attributes for ANY candidate in ANY field.

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Begin at the beginning...

Set Expectations
**Expectations of the Mentor**

**What trainee wants**
- Shared research interests
- Similar training expectations
- Complementary mentoring styles
- Secure funding and position
- Access to facilities
- Track record of publishing
- Happy trainees
- Successful lab alumni

**How to ask for it**
- What are your expectations for me in this postdoc?
- What do you expect in the next 6-12 months?
- How are projects allocated?
- How are manuscripts written? Where are they submitted?
- What is your management style?
- Where/what have your trainees gone on to do?
- How long is this project funded? Do I need to find funding?
Expectations* of the Trainee

• Do damage to a scientific problem
• Take ownership of your project - be in charge and know the literature
• Be resourceful
• You are also a mentor
• Be organized - in your thinking and approach
• Be generous - with your time, ideas, and reagents

• Be open to criticism and suggestions
• Give 110%
• Collaborate! Work to get along with others
• Strive for perfection - in your work and in your presentations
• Be a good lab citizen
• Take care of yourself!

*Not all mentors are created equal!
Your Training Goals

• Gain independence
  – Funding, research, & collaborators
  – Mentor & supervise

• Build professional identity
  – Relationships & network
  – Field / technical expert

• Identify a vision for the future
  – Research & career
Consider the Stakeholders in Your Training

YOU! (and your family)

PI / Lab / Department / Institution

Funding Agency

Future Employers

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Take effective action...

Assess Your Situation
Assess Yourself

**SKILLS:** what you are good at?
**INTERESTS:** what you enjoy doing?
**VALUES:** what matters most to you?

• Analysis of activities, ideas, and motivations
• Affirmation of strengths and competencies
• Awareness weaknesses and gaps
Identify Postdoc Pivot Points

• Professional
  – Inactive network
  – Unknown career target
  – Unpolished career story
  – Unsure of marketable skills

• Personal
  – Analysis paralysis
  – Unrealistic expectations
  – Exhausted, jaded, or burnt out

• Project
  – Near end date
  – Incomplete achievements
  – Little or no mentor engagement
Utilize Self Assessment Tools

Personality

Myers Briggs (MBTI)
- Jung Typology Test
  - www.humanmetrics.com/cgi-win/jtypes2.asp
- The Myers Briggs Foundation
  - www.myersbriggs.org/my-mbti-personality-type/mbti-basics/

Career

myIDP
- Individual Development Plan
  - www.myIDP.sciencecareers.org

Doug’s Guides
- Job Search Preparedness
  - www.dougsguides.com/

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Appraise Skills

- Research and Problem Solving
- Scientific Knowledge
- Responsible Conduct of Research
- Communication Skills
- Management and Leadership Skills
- Professionalism
- Career Advancement
- Transferable and Soft Skills
Evaluate Interests

- Identifies themes in your work
- Reflects your activities and affinities
- Provides focus for your ideas
- Keeps you engaged and satisfied
- Gets you out of bed in the morning
- Bridges your diverse pursuits

My interests include music, science, justice, animals, shapes, feelings.
Consider Values

• What do you require in your job?
• What are you willing to cope with?
• What can you live without?
• What are your deal-breakers?

How do your values dis/connect with what you are doing or considering?

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Ensure Career Satisfaction

Skills

Interests

Values

Fit!
Develop a Plan

Career & Professional Development
Research Skills & Techniques
Project Completion

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Establish a Timeline

Professional Development

Career Planning

IDP

Demystifying the Job Search & Career Transition

Academic Job Track

Transition to Industry

Postdoc Essentials

Grantsmanship

Communicating Science

The Postdoc Life Cycle

Responsible Conduct of Research

Leadership & Management

Professional Development for Scientists

Research Progress

Early

Mid

Late

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Develop Your Plan

1. Self-assessment
   Consider your skills, values, and interests

2. Career exploration
   Learn about career options for PhD-level scientists, and compare your skills, interests, and values to each option.

3. Set goals
   Make a concrete plan for how you will improve your skills, build your network, and get the experience you need to prepare for your future career.

4. Share your plan with mentors
   Recruit mentors to help with various parts of your plan.

Focus & Evaluation

Confirmation of Strengths

Refinement & Re-assessment

Identification of Skills/Experience Gaps
Plan Your Development

- Laboratory -
Postdoc/PI

- Exploratory -
PDO/Postdoc

Guidance & Tools for Annual Planning Meeting

The Individual Development Plan (IDP) is a mentoring tool that links research goals with career development and progress towards independence. It is meant to foster an ongoing and recurring discussion that involves evaluation, goal setting and feedback with input from both postdoc and PI. While the NIH encourages the use of IDPs for graduate students and postdoctoral researchers supported by NIH awards, HMS supports its implementation for all postdoctoral fellows, regardless of funding source.

The following IDP template provides an open framework that can facilitate an annual planning meeting between the postdoc and PI that addresses research and professional progress. This document should be filled out by both parties beforehand and discussed during the meeting.

Section I outlines major topics of discussion, benchmarks advancement, and identifies real or potential barriers to success along the training path. The feedback element allows for the PI to evaluate trainee performance and progress while letting the postdoc assess issues related to research, training, or mentoring.

Section II is a calendar for the upcoming year that allows for research and career development goals to be outlined and organized.

**Step 1:** Postdoc and PI should complete Sections I & II separately. The postdoc should provide this form and an updated CV to the PI in advance of scheduling the meeting.

**Step 2:** Meet and discuss Sections I & II; review accomplishments, goals and feedback. Begin outlining an agreed upon action plan towards making progress and meeting stated goals and objectives.

**Step 3:** Implement action plan, review progress, and revise as needed.

These guidelines and template are provided as an example that can be used in an Annual Planning Meeting or modified to suit individual needs.
The Individual Development Plan

GOALS AND PLANNING

June 2015

Accomplishments (from previous timeframe)

- Published paper
- Directed major paper including new experiments
- American Society of Experimental Biophysics - Speaker, Annual Meeting
- NSF research grant submitted
- Follow-up meetings in progress

High priority

- Continue to support CASPER project
- Keep in touch with Cohen

Follow-up on Cohen

Low priority

- Continue to support CASPER project
- Suggest meeting with potential mentors

Professional & Personal Goals (for upcoming timeframe)

- Attend national meetings
- Complete lecture series project
- Start thinking about future ideas

Professional & Personal goals

Feedback

- NCSF system has really helped with communication with you and others in lab
- As always, you provide excellent support with scientific and personal and help us develop as well-rounded scientists!
- Writing the NSF grant was a great experience. 3 person team writing is a good template for the future.

- We've gotten better at setting appropriate expectations for national students.
- Lack of clear timelines in paper drafts have been a source of frustration for a couple lab members
- I've mentored 4 people in 3 years and often feel like the only person with real projects in place.
Implement Your Plan

S – Specific – Is it focused and unambiguous?

M – Measureable – How do you know if you achieved this goal?

A – Action-oriented – What specific action(s) you will take?

R – Realistic – Considering difficulty and timeframe, is this goal attainable?

T – Time-bound – Did you specify a deadline?

• Career advancement goals
  – expand your professional network
  – update your CV or resume
  – identify new mentors
  – informational interviewing

• Skills development goals
  – get training (read a book; talk to an expert; take a course)
  – practice & hone skill
  – assess & critique new skill

• Project completion goals
  – complete statistical analysis
  – present at a conference
  – write a paper or grant
Keep Yourself Accountable

• Make a concrete, specific plan
• Build in benchmarks and milestones
• Share with mentors and colleagues
• Anticipate challenges
• Learn from hardships
• Celebrate your successes
• Review completed goals
• Repeat the process
Maintain Your Progress
Create a Trajectory
Seek Outside Guidance

- Mentoring & Relationships
- Conflict Resolution/Negotiation
- Networking Skills
  - Online, in-person
  - Informational Interviews
  - Strategic dual-purpose
- Career Exploration
- Application Material Critique
  - CV, Resume
  - Cover Letter
  - Teaching/Research Plan
- Interview Prep

Get a reality check
Don't make it personal
Be prepared for meetings
Ask for feedback & provide ideas
Seek out multiple advisors/mentors
Don't get isolated; make yourself visible
Be honest & responsible; You are all adults
Set goals & expectations; re-evaluate often (IDP)
Use available resources; Leverage your time as a postdoc

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Work Intelligently

Make everything you do multi-purpose

Unify diverse aspects of your training

Share your interests

• Department seminars and functions
• Career workshops & panels
• Seminars with external speakers
• Job fairs (even, if you’re not looking)
• Introduce yourself and exchange business cards
• Reach out to speakers, if you can’t attend
• Stealth network: Tap into mentors, colleagues, alumni, friends...AND church, daycare, salon, gym, bus

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Recognize/Develop Transferable Skills

• Publication = project management
• Planning and organizing events
• Networking with others / relationship-building
• Collaboration = working in teams with unified goals
• Budgets, inventory, and workflow
• Time management and multi-tasking
• Supervising, training, and managing people
• Leadership, service, and outreach
• Teaching and mentoring
What Can You Do NOW?
Career Research Advancement
Focused Training (CRAFT)

• “Academia: A Primer For A Career in Pharma” Rachael Gerlach, PhD, Regulatory Associate Clinical Operations, US WorldMeds, LLC (1.21)
• “Strategically Navigating Your Early Research Career” Jim Gould, PhD, Director, HMS/HSDM Office for Postdoctoral Fellows, Harvard Medical School (2.18)
• Randall Ribaudo, PhD, CEO Human Workflows, LLC, Co-founder SciPhD.com (3.10)
SIGS PLAN Professional Development

- **Academies**: Community Engagement; Entrepreneurship; Graduate Teaching Assistant; STEM GTA Mini-Academy; Grant Writing; Publishing
- Finding the Right Post Doc Position (2.16)
- Writing a Literature Review (2.23)
- Managing Your Mentor (2.25)
- Women in Community Engagement Panel (4.1)
- Why You Need a Statement of Teaching Philosophy (4.5)
- Transitioning Into Faculty Life (4.6)

http://louisville.edu/graduate/plan

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Additional Opportunities

• UofL Women's Center: HSC Women's Post Doc Lunch
• Louisville Women in Medicine & Science (L-WIMS)
• Science Policy & Outreach Group (SPOG)
• Kentucky Life Sciences Council (KLSC)
• Research!Louisville
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III. Develop your plan
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V. Maintain your progress
Thank You!