



BMSC 8219

Candidate background and goals

March 29, 2021

What are your professional goals for this year?

How are your activities related to your goals?

Do you need more information to achieve your goals?

Eventually, we want to connect training goals and research plan

First and Second Years: Probationary Recruit

Coursework & grades

Rotations & selection of thesis advisor

Research skills & pilot data

Candidacy Exam = Qualifier

Third Year, plus: Doctoral Candidate

More research skills & pilot data

Publish academic papers

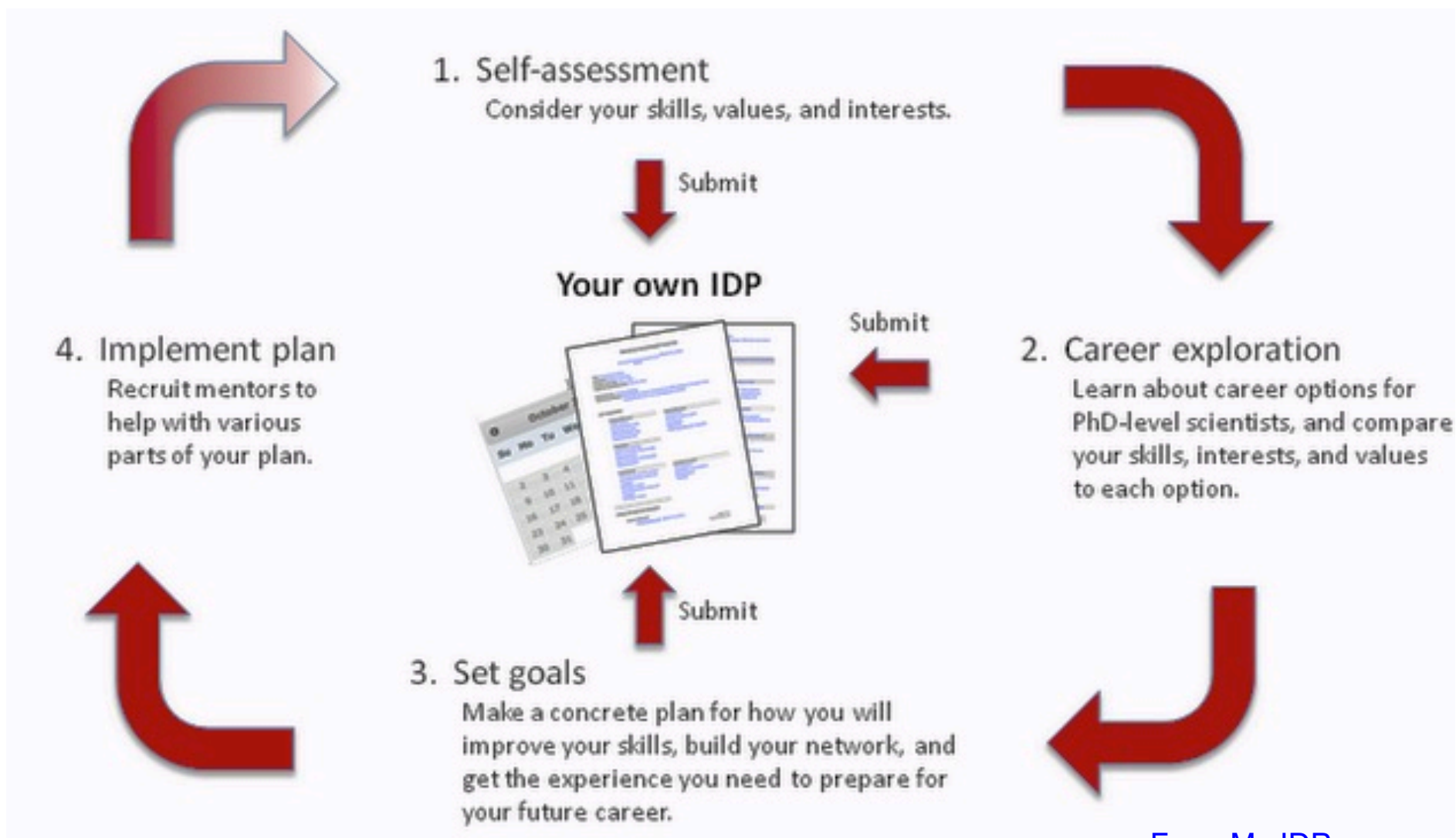
Present at conferences

Apply for research fellowships

Thesis and oral defense, then graduate

End of Fifth Year: Go On (..to what?)





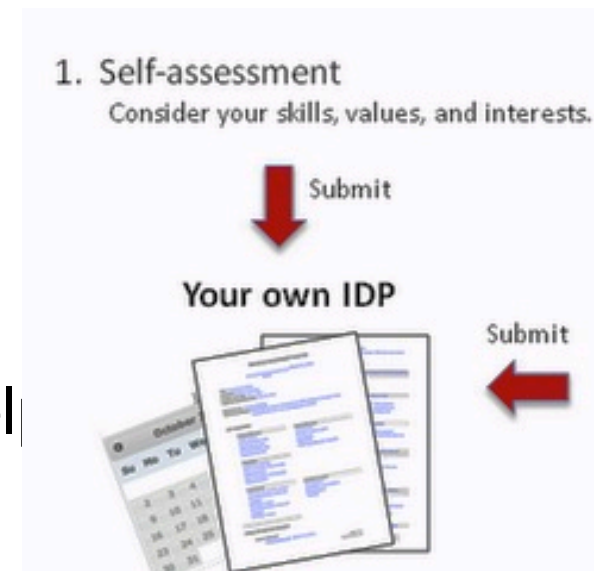
From My IDP

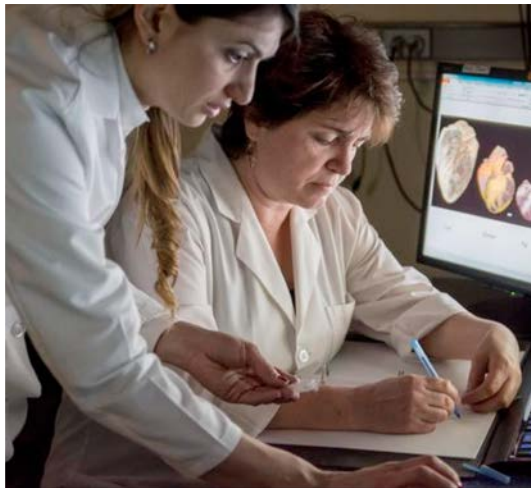
- People who use strategies to pursue career-specific goals:
- achieve greater career success as measured by salary, promotions, and level of responsibility.³
 - report greater career satisfaction and rate themselves as more successful than their peers compared to those without career plans.⁴
 - reported greater satisfaction, published more papers, and experienced fewer conflicts with their advisers.⁵



Understanding you--the skills you possess, what interests excite you, and what values add meaning to your life.

- GW Center for Career Services
<https://careerservices.gwu.edu/career-exploration-assessment>
- Myers Briggs Type Indicator (MBTI) will help you to understand your preferences
- My IDP has skills, values, interest inventories
- [OITE](#) at NIH-workshops on resilience, careers, job search





Quick Tips
My Assessment
Summary

Rate how important it is to you that your future career path matches each of the following values, where:
 1 = Unimportant
 5 = Essential

1 = Unimportant | 5 = Essential

<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 [clear]	Help Society: contribute to betterment of world
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 [clear]	Help Others: be involved with directly helping individuals or small groups
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 [clear]	People Contact: have day-to-day contact with clients or colleagues
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 [clear]	Teamwork: work in collaboration with others as part of a team
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 [clear]	Friendships: Develop close personal relationships with people at work

1 = Unimportant | 5 = Essential

<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 [clear]	Congenial Atmosphere: work with friendly colleagues
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 [clear]	Competition: engage in activities that test my abilities/achievements against others' abilities/achievements
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 [clear]	Make Decisions: have authority to decide courses of action, policies, etc.
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 [clear]	Fast Pace: work in a busy atmosphere with frequent deadlines
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 [clear]	Supervision: be directly responsible for work done by others

1 = Unimportant | 5 = Essential

<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 [clear]	Influence People: be in a position to change attitudes or opinions of other people
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 [clear]	Work Alone: work on projects by myself, with little contact with others
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 [clear]	Independence: work with little direction from others
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 [clear]	Intellectual Challenge: perform work that is intellectually stimulating
<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 [clear]	Work on Frontiers of Knowledge: engage in the pursuit of knowledge or generating new ideas

1 = Unimportant | 5 = Essential

<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 [clear]	Expert Status: be acknowledged as an expert in a given field
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Many PhD Programs work to build scientific skills

Scientific Skills Assessment

Quick Tips | My Assessment | Summary

Assess your proficiency in these areas on a scale of 1-5 where:
1 = Highly deficient
5 = Highly proficient

Scientific Knowledge
1 = Highly deficient | 5 = Highly proficient

<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Broad based knowledge of science
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Deep knowledge of my specific research area
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Critical evaluation of scientific literature

Research Skills
1 = Highly deficient | 5 = Highly proficient

<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Technical skills related to my specific research area
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Experimental design
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Statistical analysis
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Interpretation of data
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Creativity/innovative thinking
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Navigating the peer review process

Communication
1 = Highly deficient | 5 = Highly proficient

<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Basic writing and editing
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Writing scientific publications
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Writing grant proposals
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Writing for nonscientists
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Speaking clearly and effectively
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Presenting research to scientists
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Presenting to nonscientists
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Teaching in a classroom setting
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Training and mentoring individuals
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Seeking advice from advisors and mentors
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Negotiating difficult conversations

Professionalism

1 = Highly deficient | 5 = Highly proficient

<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Demonstrating workplace etiquette
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Complying with rules and regulations
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Upholding commitments and meeting deadlines
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Maintaining positive relationships with colleagues
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Contributing to discipline (e.g. member of professional society)
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Contributing to institution (e.g. participate on committees)

Management and Leadership Skills

1 = Highly deficient | 5 = Highly proficient

<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Providing instruction and guidance
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Providing constructive feedback
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Dealing with conflict
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Planning and organizing projects
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Time management
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Developing/managing budgets
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Managing data and resources
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Delegating responsibilities
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Leading and motivating others
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Creating vision and goals
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Serving as a role model

Responsible Conduct of Research

1 = Highly deficient | 5 = Highly proficient

<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Careful recordkeeping practices
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Understanding of data ownership/sharing issues
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Demonstrating responsible authorship and publication practices
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Demonstrating responsible conduct in human research
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Demonstrating responsible conduct in animal research
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Can identify and address research misconduct
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	[clear]	Can identify and manage conflict of interest

Career Planning

Any gaps should become goals during fellowship!

3. Set Goals

Think about your career goals and the skills:

- Which skills do you possess, which do you need to strengthen?
- What sorts of activities/experiences make you a good candidate?



- Overview
 - Overview Summary
 - Personal Information
- Assessment
 - Skills Assessment
 - Interests Assessment
 - Values Assessment
- Career Exploration
 - Consider Career Fit
 - Read About Careers
 - Attend Events
 - Talk to People
 - Choose a Career Path
- Set Goals
 - Career Advancement Goals
 - Skill Goals
 - Project Goals
- Implement Plan
 - Mentoring Team
 - myIDP Summary
 - Completion Certificate

Consider Career Fit

Previous Step Next Step

Quick Tips My Career Path Matches

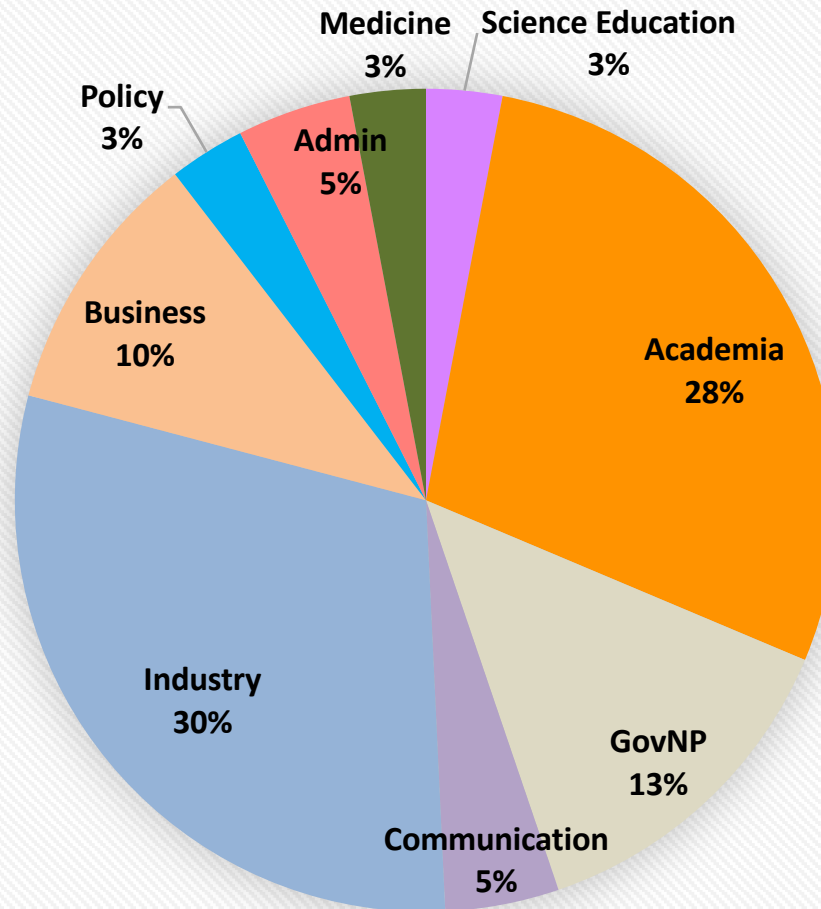
The table below lists career paths commonly followed by PhD-level scientists.

Click on the percentages in the right-hand columns to see how your skills and interests compare to the skills and activities most important to each career path category (as rated by professional career advisors). [Return to the Quick Tips](#) to learn about how these match scores were calculated. NOTE: Do not feel that these results limit your career options. You may be able to improve key skills to allow success in any career path.

Click anywhere in the "Values" column for a list of questions to help you think about how your values may fit into each path. Keep these questions in mind as you learn more about each career path in later sections of the module.

Career Path	Skills Match	Interests Match	Values
Principal investigator in a research-intensive institution: Independent researcher at a medical school, private research institute, government lab or university with minimal teaching responsibilities	0%	0%	
Research in industry: Discovery or preclinical researcher; manager of a research team or facility	0%	0%	
Research staff in a research-intensive institution: Staff scientist or researcher in academia or government, lab manager, director of a multi-user research facility in an academic institution	0%	0%	Consider Your Values!
Combined research and teaching careers: Faculty at a liberal arts college or university whose job includes both research and major teaching responsibilities	0%	0%	
Teaching-intensive careers in academia: A primarily teaching faculty position in a research university, liberal arts college, community college	0%	0%	
Science education for K-12 schools: Classroom teacher; curriculum developer; science specialist	0%	0%	
Science education for non-scientists: Education or public outreach specialist such as at a science museum or scientific society	0%	0%	
Clinical practice: Clinician such as genetics counselor, therapist, physician	0%	0%	
Public health related careers: Public health program analyst or evaluator; epidemiologist; biostatistician; medical informaticist	0%	0%	
Scientific/medical testing: Testing specialist in an environmental, public health, genetics, or forensic science setting (intelligence agencies, federal/state departments of justice); clinical diagnostician	0%	0%	

2005-2009 PhD Earners



What are various careers really like, and how does one prepare for them?

Strategies for developing skills

1. Get training.

- Participate in a course or workshop (local or online).
- Watch a recorded workshop or seminar. (The [NIH Office of Intramural Training and Education](#) and the [Khan Academy](#) have posted many skills seminars online.)
- Read an article, chapter, or book focused on the skill.
- Observe others who excel at the skill.
- Discuss strategies with a mentor or peer who excels at the skill.

2. Practice.

- Do assignments in the context of a course.
- Be aware of when you use the skill in your day-to-day schedule and consciously practice particular techniques in each instance.
- Schedule protected time to practice (for example, you could practice your writing skills by free-writing every Friday morning for 15 minutes after breakfast, or practice assay measurements using a set of standards.)
- Volunteer for additional activities (for example, you could offer to make an extra journal club presentation).

3. Get feedback.

- Complete an assessment in the context of a course.
- Ask anyone who excels at the skill to give you feedback; it could be an outside source, your mentor, or a peer.
- Define criteria for success and then assess your own improvement. (For example, watch a video of yourself giving a talk.)



“Goal-Setting Strategies for Scientific and Career Success”

Cynthia N. Fuhrmann, Jennifer A. Hobin,
Philip S. Clifford, Bill Lindstaedt Dec. 3,
2013

NIH requires that annual progress reports after 2014 must include a section to describe how IDPs are used for graduate students and postdocs associated with the NIH grant award (of any kind). In RPPR, section B Accomplishments, B.4

- Become familiar with available opportunities, other careers and trends, as well as campus resources.
- Discuss opportunities with trainees in a separate, scheduled, private meeting distinct from research meetings.
- Review IDP and help revise. Provide honest feedback to help trainee set realistic goals. Agree on a plan that allows research productivity and adequate skill development
- Assess new activities in light of the IDP. Suggest workshops or other training opportunities that advance the plan.
- Regularly review progress. Meet with trainee about progress, expectations and changing goals.

Training Potential

- Are the proposed research project and training plan likely to provide the candidate with the requisite **individualized and mentored experiences** in order to obtain appropriate skills for a research career?
- Does the training plan **take advantage of the candidate's strengths** and **address gaps in needed skills**? Does the training plan document a clear need for, and value of, the proposed training?
- Does the proposed training have the potential to serve as a sound foundation that will clearly enhance the candidate's ability to develop into a productive researcher?

- A. Doctoral Dissertation and Research Experience
Amplify biosketch –discuss research background, motivations, what you learned, career interests. Maybe 1.5 pages

- B. Training Goals & Objectives
Organize by 6 NPA research competencies. Be very specific, and describe how the activity will build competency. Maybe 2.5 pages

- C. Activities Planned Under this Award incl Timeline. Maybe 0.5 pages



Competencies: Discipline-specific knowledge & critical thinking--examples

- My first goal for the training period is to continue developing my skills in independent experimental design, execution, and interpretation of results obtained.
- The research proposed will solidify my discipline-specific knowledge of X, including skills in experimental design, data interpretation and critical thinking.
- My discipline-specific knowledge will be enhanced through discussion with experts during our weekly GW Cancer Center seminars (Tuesdays at 12pm) and Microbiology/Immunology departmental seminars (Wednesdays at 12pm or 5pm).
- I will also learn which techniques or analysis tools are appropriate to apply in the rational testing of my hypotheses. Dr. X. with significant bioinformatics experience, will guide me in the use of the...
- My co-mentor Dr. X has over 20 years of experience in the mentorship of graduate students, and experience in the field Y. He will help to guide me through my training, specifically by serving on my thesis committee to guide my development.

- The proposed research will aid my scientific career by first allowing me to acquire many new technical skills e.g. XYZ assays. These new skills will complement those from my time as a research specialist as well deepen my knowledge of critical practical skills.
- I practice my seminars in front of Dr. X and lab members to improve my style by becoming more clear and polished.
- I will continue to be an active participant in journal clubs to discuss primary research, our research seminars to present my own research, as well as attend invited speakers from other institutions to continue to broaden my knowledge of my scientific field
- The Y laboratory has weekly roundtable lab meetings (Wednesdays 1-3pm) in which I have the opportunity to learn experimental design and receive technical troubleshooting advice from...

- I will additionally train on the CRISPR technique in the X lab with Y (postdoc), who has 10 years of molecular biology experience. I will also train on Z in the X Lab at NIH.
- I will attend an “R” Workshop, a Python Workshop, and a Software Carpentry Workshop (shell/git/Python) all hosted by the GW Gelman Library. Training with the Core Manager, X on the usage of the new Y facility.
- National and international conferences and workshops will enhance my training. I plan to attend the Cold Spring Harbor “Statistical Methods for Functional Genomics” workshop and/or the “Computational Genomics” workshop.
- The collaboration with Dr. X will help me gain a new technical skill in Y assay, which is necessary to carry out my studies...In addition, this collaboration will help me to expand my scientific networks and bring an invaluable new skill to my lab.
- With my mentor, we have developed a goal to publish at least one paper per year.

- I will supervise an undergraduate student in the X lab. This mentorship opportunity allows me to improve my communication and leadership skills through the development of my managerial and delegation skills.
- For example, I have attended workshops Preparing a Fellowship Application, and Leadership/Conflict Management. I plan to attend workshops on preparing for a successful postdoc and career in academia.
- Attendance to yearly conferences will not only expose me to the latest and breaking research being conducted, but it will also provide me with networking opportunities, feedback on my work from other experts in the field, and potential for developing future collaborations.
- The process of developing and writing this fellowship with Dr. X and others, and manuscript with Dr. Y from my rotation in her lab, not only has been an amazing experience, but also i revealed I still have much to learn from them in this area.
- Developing both of these communication skills is an ongoing process as they are essential to my advancement in science.



Your goals in context: NPA competencies

Research Competency Skill Assessment				Date			
		Completed Workshop or Training	Watched Another Perform	Performed with Supervision	Performed Independently	Taught the Skill	Published with Skill
1	Discipline-Specific Conceptual Knowledge						
	Defining scientific questions						
	Design testable hypothesis						
	Broad knowledge acquisition						
	Critical interpretation and analysis of data						
2	Research Skill Development						
	Literature Search Strategy and Interpretation						
	Experimental Design						
	Statistical Analysis						
	Identifying Sources of Error and Bias						
	Data Analysis and Interpretation						
	Laboratory Techniques and Safety						
	Principles of Peer Review Process						
3	Communication Skills						
	Writing (Abstract/Paper/Grant)						
	Oral (Journal Club/ Oral Talk)						
	Teaching Others						
	Public Outreach						
4	Professionalism						
	Workplace						
	Cultural Diversity						
	Skills as Mentor and Mentee						
	Team Work/ Collaboration						
5	Leadership and Management Skills						