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
Typical Activities in a Biomedical PhD Program

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?)
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. Implement plan
Recruit mentors to help with various parts of your plan.

Your own IDP

Submit

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.\(^5\)
How do you get started?
1. Self-Assessment

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
### Values Assessment

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

1 = Unimportant
5 = Essential

**Help Society**: contribute to betterment of world

**Help Others**: be involved with directly helping individuals or small groups

**People Contact**: have day-to-day contact with clients or colleagues

**Teamwork**: work in collaboration with others as part of a team

**Friendships**: Develop close personal relationships with people at work

**Congenial Atmosphere**: work with friendly colleagues

**Competition**: engage in activities that test my abilities/achievements against others’ abilities/achievements

**Make Decisions**: have authority to decide courses of action, policies, etc.

**Fast Pace**: work in a busy atmosphere with frequent deadlines

**Supervision**: be directly responsible for work done by others

**Influence People**: be in a position to change attitudes or opinions of other people

**Work Alone**: work on projects by myself, with little contact with others

**Independence**: work with little direction from others

**Intellectual Challenge**: perform work that is intellectually stimulating

**Work on Frontiers of Knowledge**: engage in the pursuit of knowledge or generating new ideas

**Expert Status**: be acknowledged as an expert in a given field
Many PhD Programs work to build scientific skills

### Scientific Skills Assessment

**Scientific Knowledge**
- **1 = Highly deficient | 5 = Highly proficient**
  - \(1: 0 2 3 4 5\) | \(2: 0 2 3 4 5\) | \(3: 0 2 3 4 5\) | \(4: 0 2 3 4 5\) | \(5: 0 2 3 4 5\) | \(6: 0 2 3 4 5\)
  - Broad based knowledge of science
  - Deep knowledge of my specific research area
  - Critical evaluation of scientific literature

**Research Skills**
- **1 = Highly deficient | 5 = Highly proficient**
  - \(1: 0 2 3 4 5\) | \(2: 0 2 3 4 5\) | \(3: 0 2 3 4 5\) | \(4: 0 2 3 4 5\) | \(5: 0 2 3 4 5\) | \(6: 0 2 3 4 5\)
  - Technical skills related to my specific research area
  - Experimental design
  - Statistical analysis
  - Interpretation of data
  - Creativity/innovative thinking
  - Navigating the peer review process

**Communication**
- **1 = Highly deficient | 5 = Highly proficient**
  - \(1: 0 2 3 4 5\) | \(2: 0 2 3 4 5\) | \(3: 0 2 3 4 5\) | \(4: 0 2 3 4 5\) | \(5: 0 2 3 4 5\) | \(6: 0 2 3 4 5\)
  - Basic writing and editing
  - Writing scientific publications
  - Writing grant proposals
  - Writing for nonscientists
  - Speaking clearly and effectively
  - Presenting research to scientists
  - Presenting to nonscientists
  - Teaching in a classroom setting
  - Training and mentoring individuals
  - Seeking advice from advisors and mentors
  - Negotiating difficult negotiations

### Professionalism

**1 = Highly deficient | 5 = Highly proficient**
- \(1: 0 2 3 4 5\) | \(2: 0 2 3 4 5\) | \(3: 0 2 3 4 5\) | \(4: 0 2 3 4 5\) | \(5: 0 2 3 4 5\) | \(6: 0 2 3 4 5\)
  - Demonstrating workplace etiquette
  - Complying with rules and regulations
  - Upholding commitments and meeting deadlines
  - Maintaining positive relationships with colleagues
  - Contributing to discipline (e.g., member of professional society)
  - Contributing to institution (e.g., participate on committees)

### Management and Leadership Skills

**1 = Highly deficient | 5 = Highly proficient**
- \(1: 0 2 3 4 5\) | \(2: 0 2 3 4 5\) | \(3: 0 2 3 4 5\) | \(4: 0 2 3 4 5\) | \(5: 0 2 3 4 5\) | \(6: 0 2 3 4 5\)
  - Providing instruction and guidance
  - Providing constructive feedback
  - Dealing with conflict
  - Planning and organizing projects
  - Time management
  - Developing/managing budgets
  - Managing data and resources
  - Delegating responsibilities
  - Leading and motivating others
  - Creating vision and goals
  - Serving as a role model

### Responsible Conduct of Research

**1 = Highly deficient | 5 = Highly proficient**
- \(1: 0 2 3 4 5\) | \(2: 0 2 3 4 5\) | \(3: 0 2 3 4 5\) | \(4: 0 2 3 4 5\) | \(5: 0 2 3 4 5\) | \(6: 0 2 3 4 5\)
  - Careful recordkeeping practices
  - Understanding of data ownership/sharing issues
  - Demonstrating responsible authorship and publication practices
  - Demonstrating responsible conduct in human research
  - Demonstrating responsible conduct in animal research
  - Can identify and address research misconduct
  - 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?
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
• 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.
Leadership and collaboration skills

• 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.
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<tr>
<th>Research Competency Skill Assessment</th>
<th>Completed Workshop or Training</th>
<th>Watched Another Perform</th>
<th>Performed with Supervision</th>
<th>Performed Independently</th>
<th>Taught the Skill</th>
<th>Published with Skill</th>
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<td>4   Professionalism</td>
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