Meakins Postdoctoral Fellow Training Program Guide

Many postdoctoral fellows pursue professional opportunities not only in academia but also in industry, government, nonprofits, and entrepreneurship. The variety of career options available today demands a diverse array of skills. This guide explores the various skills employers look for and provides resources to help PDFs examine their skills, interests, values, while exploring potential career paths.

This guide is divided into 3 sections:

Science education and outreach

Academia

Career counselor

Journal editor

Research policy

Technology-based laboratory

Science publishing and editing

Industry

Technology commercialization

Teaching

Medical Science Liason

Venture capitol

University administration

Patent law

entrepreneur

Business of Science

government

Management consulting

Marketing

Data Science and Software development

Science and Medical Writing

Clinical practice

Intellectual property

Nonprofits and NGOS

Science policy

Product development scientist

Drug/device approval and production

Clinical research management

Management consulting

consulting

Research administration

Science communication

Staff scientist

biotechnology

Completing the Professional Development Plan

The **Professional Development Plan** (Section A in the Meakins Professional Development Plan and Annual Progress Report) serves as a communication tool between PDFs and PIs, and provides a planning process that identifies both professional development needs and career objectives. The plan opens communication, identifies expectations, establishes goals, supports the importance of training, and should be flexible to allow new opportunities to be pursued when appropriate.

The professional development plan is designed to help you:
1. Have regular and thoughtful discussions of the strengths and limitations of the research project, so as to maximize research skills and productivity
2. Identify long-term career goals that fit with your unique skills, interests, and values
3. Make a plan for improving your skills
4. Set goals for the coming year to improve efficiency and productivity

Resources to help you complete your professional development plan

my IDP INDIVIDUAL DEVELOPMENT PLAN ScienceCareers	Examine your skills, interests, values, and potential career paths. Interactive IDP: https://myidp.sciencecareers.org/
The versatile PhD	Explore Career Options: http://versatilephd.com/phd-career-finder/
The New York Academy of Sciences Building communities, advancing science since 1817	Career Path videos: http://www.nyas.org/WhatWeDo/CareerVideos.aspx
Science	Drafting goals, expectations, and timelines *So you think you have skills* (Hobin et al.) Science, Sept 21, 2012 http://www.sciencemag.org/careers/2012/09/so-you-think-you-have-skills
NATIONAL POSTDOCTORAL ASSOCIATION	National Postdoc Association Core Competencies document and checklist: http://www.nationalpostdoc.org/?CoreCompetencies

Guide to help you complete your Core Competencies/Skills (Section A3)

The following are examples of core competencies/skills that a PDF may be interested in further developing. These core competencies are meant as a basis for self-evaluation and should help determine areas for self-improvement.

1. Scientific Knowledge and Research Skills
   a. Do you have broad-based research knowledge?
   b. Do you have knowledge of a specific research area?
   c. Can you develop a hypothesis?
   d. Can you critically evaluate scientific literature?
   e. Can you identify gaps in your area of research?
   f. Are you familiar with the principles of the peer review process?
   g. Are you able to develop ideas/topics for new investigation?
   h. Have you developed new research and technical skills?
   i. Are you proficient in designing experiments?
   j. Can you appropriately statistically analyze your data?
   k. Do you have a thorough understanding of data interpretation/analysis? Can you interpret your results? Can you establish the significance of your results?
   l. Are you able to think creatively and propose innovative solutions?
2. Communication and Interpersonal skills
   a. Are you familiar with publishing standards?
   b. Do you practice writing and submitting papers?
   c. Do you practice writing and submitting grants?
   d. Have you given technical (scientific) talks and poster presentations?
   e. Are you able to communicate your science to a lay audience?
   f. Once you produce new research findings, are you able to report/teach these findings?
   g. Are you involved in teaching?
   h. Are you involved in mentoring activities?
3. Leadership and management skills
   a. Do you know how to facilitate effective teamwork?
   b. Do you know how to manage operations (e.g. lab operations)?
   c. Are you able to plan and organize projects?
   d. Do you delegate responsibilities? If yes, are you able to provide instruction, guidance, and feedback to your peers/team?
   e. How is your time management? Are you able to meet deadlines? Are you able to balance several projects at once?
   f. Have you acquired leadership skills? Are you able to create a vision and set goals, motivate your lab/team, serve as a role model?
   g. Do you sit on institutional or professional committees?
   h. Do you participate in extracurricular institute functions?
4. Career Development
   a. Do you take advantage of networking activities?
   b. Are you a member of any professional networks?
   c. Are you familiar with the career exploration resources available to you?
   d. Are you familiar with the various career paths and options available?

Areas for Reflection by the Supervisor

This document should be used to help guide the PDF to create a balanced and realistic professional development plan and to help the PDF succeed in his/her scientific training. The diversity of core competencies and skills outlined in this document can be evaluated using a number of mechanisms including informal feedback on particular skills, formal job evaluations, and through annual evaluation of the Professional Development Plan. Successful transition to intellectual and professional independence depends on the PDF's responsibility to embrace self-assessment and to develop the required core competencies as relevant to his/her career goals; all with input from the supervisor and the PDF committee.

What to focus on at each PDF committee meeting
- Review the research progress and the future research plan
- Review your PDF's professional development plan and career goals
- Review and help set the PDF's goals, expectations and timelines for skill acquisition
- Reviewing the candidates achievements and assessment of self
- Identify resources available for career exploration and filling skills gaps

How the PI and committee can help mentor a PDF
- Take an active interest in your PDF's future career – do they have realistic expectations about careers?
- Encourage the PDF to explore the various career paths available and to identify the skills required to pursue such a career path
- Provide constructive evaluation and feedback
- Help the PDF learn to write successful grant proposals and research papers
- Help the PDF to develop mentorship skills
- Help the PDF have opportunities to teach courses or act as a TA
- Help the PDF develop writing, speaking, and listening skills
    - o Writing skills can include: manuscript preparation, grant applications, CV and cover letter writing, research or teaching portfolios, letters of recommendation or collaboration
- Help the PDF develop communication skills
    - o This includes being able to present one's research (oral or poster), but also job interview skills, negotiation skills, networking skills, conflict resolution, and running a meeting
- Encourage participation in WIP, Seminar Series, group meetings, local committees
- Develop confidence in the PDF to be able to express one's attitudes, observations, or opinions using positive and reinforcing language
- Encourage the PDF to participate in local or online workshops to develop specific skills
    - o E.g. Local workshops may help the PDF to understand the principles of leaderships and to develop leadership and management skills
- Encourage the PDF to effectively manage staff, understand principles of project management, develop personal and team priority setting and time management skills, and collaborate effectively
- Ensure the PDF has developed an analytical approach to defining scientific questions and designing a hypothesis
- Refer the PDF to someone you know (academic or non-academic) when appropriate, including past trainees that may help answer any questions

Available Resources for the PDF

	Become familiar with job posting websites. Make sure to regularly review job postings to understand the requirements employees look for. http://www.idealist.org/ https://www.dropoutclub.org/ http://www.indeed.ca/ http://jobs.sciencecareers.org/jobs/
Science AAAS	Various career resources, including articles, a science career forums and several career booklets (booklets include: career trends in industry and academia, exploring careers beyond the bench, how to run your own lab, etc…). http://www.sciencemag.org/careers
NATIONAL POSTDOCTORAL ASSOCIATION	Mentoring plans for PDFs: http://www.nationalpostdoc.org/?MentoringPlans Career planning resources, including IDPs, self-assessment and self-evaluation, career options and potential career paths, networking principles, career guidebooks, guides on how to write a letter of recommendation. http://www.nationalpostdoc.org/?page=CareerPlanning
Centre universitaire de santé McGill Institut de recherche — McGill University Health Centre Research Institute	Desjardins Centre for Advanced Training of the RI-MUHC http://www.rimuhc.ca/web/research-institute-muhc/current-trainees - Prepares RI-MUHC trainees for diverse careers and future professional success by collaborating with McGill partners and generating tailored professional skills and career development opportunities for trainees. - Peer Career Group Program (starts every Fall in collaboration with CaPS) is an A-Z program of career development. The program includes 5 workshops distributed over five months, and a workbook that trainees work on in triads. This guided program takes trainees through the steps of self-assessment, career exploration, and the generation of the Individual Development Plan. All RI-MUHC trainees are welcome to attend so long as they commit to completing the entire program. - Career Half-Day for RI-MUHC trainees (held each September) is an opportunity for trainees to network with representatives from business, industry, government, and academia. All RI-MUHC trainees are welcome to attend. - Sessions that help trainees prepare wining scholarships and fellowships (held in September) include workshops given by Graphos on writing and polishing fellowship applications. - Graduate Certificate in Business Administration offered by the John Molson School of Business (a special partnership with the RI-MUHC) – trainees at the RI-MUHC receive priority admittance to this 5 course certificate program that provides them to fundamental basics to succeed in areas such as the business of science, and business skills to apply as academic researchers.

SKILLSETS Unlock Your Potential	McGill Resource: SKILLSETS SKILLSETS develops and promotes interdisciplinary professional development to trainees at McGill. Their calendar is continually being updated and their offerings are typically interdisciplinary workshops. http://www.mcgill.ca/skillsets/ https://www.mcgill.ca/skillsets/calendar Their activities are organized into nine themes of professional development. 1. Academic Integrity: avoid common pitfalls and issues related to academic integrity, such as data sharing, unintentional plagiarism or establishing author order. 2. Career Development: workshops and panels that will help you determine what careers may suit your skills and experience, and help you perfect your applications. 3. Communication Skills: workshops on effective communication - written, oral and digital media. Including "Talking It Up", the "Elevator Pitch", and "Leading Effective Discussions". 4. Fellowships and Funding: Offer clinics, consultations and workshops to help you apply for competitive graduate fellowships. Including "Would you fund it?", and "Fellowship Writing". 5. Life Skills: Workshops and events that will help you build strategies to manage the heavy workload that comes with PDF training and attain personal goals. 6. Research Management: Opportunities for trainees to develop their organizational, technical and project management skills. 7. Social Responsibility: Workshops to help you broaden your understanding of the roles that culture, race, religion, etc… play in academic and research settings. 8. Supervision: Support to both supervisors and supervisees, including resources, information, and workshops. 9. Teaching Competence: Workshops to help you build and strengthen your teaching abilities, whether as a TA, course instructor or in a non-academic career. Includes: building your teaching portfolio, designing and delivering lectures, active learning strategies, grading in sciences, leading effective discussions, and delivering lectures and tutorials.
graphos GET IT IN WRITING	McGill Resource: Teaches graduate students and postdocs how to become accomplished scholarly communicators. Trainees can register for courses, workshops, peer writing groups, and a tutorial service for help in key writing topics related to scholarly or academic writing. https://www.mcgill.ca/graphos/ Graphos collaborates with the Desjardins Centre for Advanced Training to host workshops on writing and polishing scholarship and fellowship applications (each September at MUHC sites).
McGill CaPS Career Planning Service Service de planification de carrière	The McGill Career Planning Service (CaPS) provide resources in the form of sample CVs, links to job websites, career development planning guides and workshops on topics such as career planning and building professional relationships. http://www.mcgill.ca/caps/

McGill CaPS Career Planning Service Service de planification de carrière	Example resources: Yearly Workshops, Job Search Handbook, How to Find Jobs, How to Contact Employers, How to Write a CV, How to Write a Cover Letter, How to Interview On occasion, CaPS holds individual consultations on-site at the Glen. http://www.mcgill.ca/caps/students/grad
let's talk science	Let's Talk Science is an award-winning, national, charitable organization focused on education and outreach to support youth development. They deliver unique learning programs and services that engage children, youth and educators in science, technology, engineering and mathematics. http://www.letstalkscience.ca/
The versatile PhD	Online community dedicated to non-academic and non-faculty careers for PhDs. Discover interesting new career paths. Includes hiring success stories, career autobiographies, panel discussions, and advancement success stories. https://versatilephd.com/
GOINGLOBAL Expand Your Horizons... Your Career... Your Future	Worldwide job and internship listings, employer profiles, and country-specific career information. http://online.goinglobal.com/
MY WORLD ABROAD Global career skills start here.	A comprehensive interactive web site that helps students and young professionals build global career skills. http://myworldabroad.com/
Career Cruising	An industry-leading online career guidance and planning system. Contact McGill CaPS for username and password. https://public.careercruising.com
The New York Academy of Sciences Building communities, advancing science since 1817	Career Path Videos http://www.nyas.org/WhatWeDo/CareerVideos.aspx Career Development Programs http://www.nyas.org/WhatWeDo/ScienceAlliance.aspx
WIB Women In Bio	An organization of professional women from biotech and pharma companies, universities and institutes, law and accounting firms, marketing and PR firms, CROs and CMOs whose goal is to enable and empower women to reach the highest levels of leadership, and to fulfill their own career aspirations. http://www.womeninbio.org/
(Meakins-Christie Laboratories McGill Montréal MUHC RI)	Links to articles and books on topics ranging from starting your own lab, scientific management, and scientific writing. http://www.meakinsmcgill.com/join-our-team/

Sources:
https://myIDP.sciencecareers.org
http://versatilephd.com/phd-career-finder/
http://www.sciencemag.org/careers/2012/09/so-you-think-you-have-skills
http://www.nationalpostdoc.org/?CoreCompetencies
http://blogs.nature.com/naturejobs/2015/04/20/the-postdoc-series-what-comes-next/