Karolinska Institutet Postdoc Association

Proposal of a Modern Postdoctoral Training Program

The majority of postdoctoral researchers (*herein referred to as postdocs*) will not continue as researchers in academia due to a scarcity of funds and positions. Postdocs are therefore well aware of the need to increase their marketability, and actively search for universities that offer postdoctoral programs enhancing their professional and scientific skill set. **To increase the attractiveness of Karolinska Institutet (KI) to the best postdocs on the job market, KI must ensure improved career prospects for its postdocs. KIPA recommends a well-structured postdoctoral program to achieve this goal.** We suggest to:

- Introduce a postdoc training course plan, curated by a coordinator and potentially an office for postdoctoral affairs.

- Guarantee that postdocs are entitled to spend a small fraction (5-10%) of their working time for professional development (e.g., attend courses).

- Outlining an individual professional development plan (IPD plan) to be revised annually with their postdoc supervisors, highlighting milestones and learning/professional development goals.

- A postdoc exit survey.

INTRODUCTION

In biomedical research, the postdoctoral time is a crucial transition period to an independent academic career or a professional path outside of the academic environment. **World leading universities (e.g., Stanford University, UCL) have implemented postdoc programs to better prepare postdocs for the rigors of academia**, including the professional requirements of faculty positions, or other career paths. Specifically, **18 out of the 20 top ranked universities from THE University ranking 2018[1] offer postdoctoral training programs.** The European Commission funded MORE3 survey (carried out from January 2016 to January 2018) also highlighted the need to enhance the postdoctoral experience. The MORE3 final report shows that **only 33% of early career researchers received training in transferable skills**, resulting in **an inadequate preparation for a research career.** While PhD (or equivalent) training is the time to learn how to do science, **the postdoc training is the time to acquire transferable and management skills.** International interest groups such as the National

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[1] Times Higher Education (THE) World University Rankings 2018

Postdoctoral Association (NPA) in the USA also identified the necessity of institutional postdoc training programs. **Currently, KI does not offer this type of training program**.

Here, we propose a feasible and structured postdoctoral training program based on the NPA guidelines as well as already established postdoctoral training programs of international universities.

IMPLEMENTATION

Postdocs should be given the opportunity to attend courses/ workshops/ events that provide them with the tools necessary to improve their research and their transferable skills. To this effect **postdocs should be able to allocate 5-10% of their working time to advance their skill-set.** Supervisors should agree on this, and not hinder a postdoc's professional development.
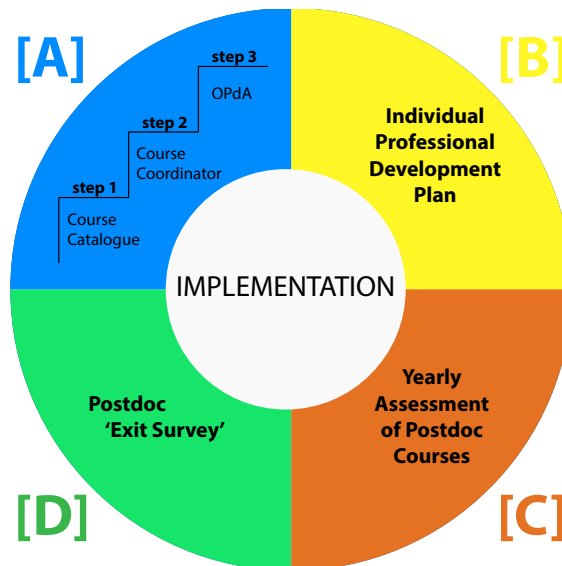
[A] Introduction of a Tailored Postdoctoral Course Catalogue, Coordinator and Potentially an Office for Postdoctoral Affairs.

Step 1: Course Catalogue

Postdocs belong to the R2[2] group of researchers (Recognized Researcher: PhD holders or equivalent who are not yet fully independent) and require tailored courses that extend beyond those provided to PhD candidates (classed as R1 researchers). We propose a **course catalogue comprising of our four-module program**, which has been outlined in Appendix A. The catalogue should be reviewed regularly (*i.e.*, annually) to ensure that courses stay relevant and up-to-date. For this we recommend an online yearly assessment whereby

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[2] R1 and R2 researcher groups are identified as intended by European Commission in the European Charter and Code for Researchers.

attendees are requested to comment on each course that he/she successfully completed (*described in point [C] below*).

We have outlined which pre-existing courses offered for the doctoral students, training options offered by Career Service at KI, as well as the KI Postdoc Association would be suitable for postdocs (Appendix A). For those currently not available at KI we provide examples from other postdoc programs run at internationally leading universities (Appendix B).

Step 2: Course Coordinator

KIPA surveyed the postdoctoral training programs offered in the top twenty universities in the world[3]. **The majority of institutions (80%) rely on a coordinator, or group of coordinators, to implement and oversee the postdoctoral training courses/program.** A coordinator would act as a curator of the courses, introduce new/ relevant courses for postdocs, search and secure funding, as well as review the online survey data from the yearly assessments to ensure that the catalogue is up-to-date. **The coordinator would also act as a point of contact for other industry and academic institutions in an attempt to, where possible, create new professional development options to postdocs of KI.**

Step 3: Office of Postdoctoral Affairs (OPdA)

The OPdA of a university addresses issues which emerge throughout the full lifecycle of the postdoc. This starts from before the postdoc's arrival, to throughout their time at the respective university. This requires the establishment of close working relationship with numerous university offices, such as Career Service, Human Resources, other University departments and the Postdoc Association. The OPdA is supported financially by the respective university, however is also responsible for developing a short and long term funding strategy. There is an opportunity for the OPdA to host a dedicated ombudsman for postdocs. Based on our aforementioned survey, **such a development has required a minimum of four years to formally implement**.

[B] Individual Professional Development plan (IPD plan).

We propose a **mandatory pro forma outlining specific target research and professional development goals** to be filled-in and discussed at the start of the postdoc period between the postdocs and their supervisors. We propose a yearly follow-up discussion and review to ensure these goals are being met from both sides.

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[3] Times Higher Education (THE) World University Rankings 2018

[C] Yearly Assessment of Postdoc Courses.

We propose a **centralized online survey system** whereby postdocs can access to grade and review courses they have successfully attended. **This system will act as a valuable tool for KI** to improve on pre-existing courses, as well as provide current and popular learning opportunities that mirror other internationally renowned institutions.

[D] Postdoc Exit Survey to assess KI Postdoc Training Experience.

A postdoc which has formally departed from the institute will be offered the opportunity to provide detailed feedback on their training experience at KI. This will include, but not be limited to, the courses, the structure of the courses, their availability, as well as the general support received from the institute.

CONCLUSIONS

Postdocs have been called *the invisible university*; they are neither students nor faculty. Their role is nevertheless central in the delivery of cutting edge research. Recognizing this, top-ranked institutions around the world established offices of postdoctoral affairs and designed training programs to develop the professional skills of postdocs. **KI needs to develop postdoctoral training programs to enable its early career researchers to reach their highest potential, in order to increase KI attractiveness for the best postdocs on the job market, scientific output, and foster its connection to industry and other academic institutions.** Multiple courses relevant for postdocs are already available at KI, therefore implementation of a formal recognized postdoc training program will be a relatively easy and low-cost step for the institute.

MAIN BENEFITS
- Attract more competitive postdoc candidates.
- Delivery of higher quality scientific output.
- Increase chances of postdocs gaining successful positions post KI appointment.
- Increase number of affiliations KI already holds with viable long-term collaborations with foreign institutions both in academia and industry.

KI Postdoctoral Training Program

Course Catalogue

ALREADY EXISTING COURSES AT KI

MODULE 1: SCIENCE

Scientific Rigor and Data Management

Research documentation: why, what and where (personal data, ELN, KI guidelines); KIB

Ethics in Biomedical Research

Medical research ethics; PhD course

Philosophy of science and research ethics, statistics, presentation techniques and information literacy; PhD course

Publishing Strategies

Publish with impact - choose a journal for your next publication; KIB

Create your Publication list and get your numbers (e.g. H-index, ORCID, Journal Impact Factor); KIB

Write your research results and get them published; PhD course

Writing science and information literacy; PhD course

Grant Writing

Grant Writing Part 1; Career Service

Grant Writing Part 2; Career Service

Statistics and Programming

Basic Course in Medical Statistics; PhD course

Introduction to R; PhD course

Introduction to R: data management, analysis and graphical presentation; PhD course

Advanced course in SAS programming for health care data; PhD course

MODULE 2: PROFESSIONAL DEVELOPMENT

Career Planning

Self-Leadership Training for Early Researchers – Soft Skills Training in Practice; Career Service

One-to-one career coaching; Career Service

Tuesdays with Mary Rose - workshop on transferable skills; Career Service

Career skills for scientists; PhD course

Communication

Present your research; PhD course

To communicate science in different contexts; PhD course

Entrepreneurship

Exploring entrepreneurial opportunities in research Identify, Develop, Test; PhD course

CV Advice for Inside and Outside Academia

Tuesdays with Mary Rose - CV, cover letter, LinkedIn workshop; Career Service

Interviewing Skills for Inside and Outside Academia

Tuesdays with Mary Rose - interview skills workshop; Career Service

MODULE 3: CAREERS IN ACADEMIA

Teaching Strategies

Teaching and Learning in Theory & Practice; LIME

Teaching in English at KI (TEAK); LIME

Teaching and Learning in Higher Education: educational course for doctoral students; PhD course

Introduction to teaching at KI; PhD course

Preparing for a Faculty Career

Seminar on Academic Career Perspectives; Career Service

MODULE 4: CAREERS OUTSIDE ACADEMIA

Identifying your Transferrable Skills

Self-Leadership Training for Early Researchers – Soft Skills Training in Practice; Career Service

Workshop, practical soft skill training; Career Service

Company Internship Program KI

PROPOSED ADDITIONAL COURSES

MODULE 1: SCIENCE

Programming Courses
Statistics Courses

MODULE 2: PROFESSIONAL DEVELOPMENT

Leadership and Project Management
Conflict Resolution
Coaching and Mentorship
Communication

MODULE 3: CAREERS IN ACADEMIA

Negotiation Skills
Teaching Strategies

MODULE 4: CAREERS OUTSIDE ACADEMIA

Industry Research
Alternative Career Pathways

Grey text = PhD course,
Postdocs can only attend if seats are left over

The courses are organized by:

Karolinska University Library, KIB, KI
Doctoral education, KI
Career Service, KI
Department of learning, informatics, management and ethics, LIME, KI

Karolinska Institutet

Appendix B

MODULE 1: SCIENCE

Programming Courses Source: UCL (UK)

Research IT Training - *for research staff, all course material online.*

1. **Introduction to the Unix Shell**

An introduction to command line interaction with the UNIX shell.
Half-day classroom based course.

2. **Software carpentry workshop**

A hands-on two-day event that covers the core skills needed to be productive in a small research team. **2-day classroom based course.**

3. **An introduction to research programming using Python**

This course will introduce fundamental programming concepts and is aimed at researchers who want to use Python to manipulate and analyse data.
Five half-day classroom sessions.

4. **Research software engineering with Python**

Workshop oriented course, moving beyond basic programming to construct reliable, readable and efficient research software.
10 half-day classroom sessions.

Statistics Source: UCL (UK)

UCL Research Data Management Services -

- **Subject-specific information** available for data management, metadata, data repositories, and ethics.

- **MANTRA**: online training tool developed by the University of Edinburgh.

- Online training in **information security.**

1. **Introduction to Research Support and Integrity**

   General Course Outline
- Research integrity

- Research data management and research IT

- Open access and copyright

- Data Protection

- ## MODULE 2: PROFESSIONAL DEVELOPMENT

Leadership and Project Management
Source: UCL (UK)

1. **Project Management, an Introduction**

   General Course Outline
   - The stages of a project

   - Planning and preparing

   - Scheduling, monitoring and controlling

   - Roles and responsibilities

   - Risk management

   - Managing the project team

   Learning Outcomes

   - Gain the knowledge and confidence to manage a project from beginning to end.

   - Identify the different stages involved in project planning.

   - Describe the use of a Gantt chart and the relevance of milestones in monitoring and measuring progress taking account of budget, expenditure and risk management.

2. **Aspiring Managers Programme (AMP) via ILM UK**

This programme consists of four modules and uses a variety of taught and experiential techniques. Participants are also required to put the learning into practice. It provides a good foundation to the Accelerated Management Development Programme and/or Leadership & Management Programme.

An ILM* (Institute of Leadership and Management) development award is received upon successful completion.

* www.i-l-m.com/

Conflict Resolution
Source: UCL (UK)

1. **Conflict Resolution for Managers and Non-Managers**

General Course Outline
Equipping staff with the skills to effectively manage conflict, organisations will save significant time, energy and money. This course gives UCL staff a deeper understanding of conflict, and provide them with practical tools to identify, manage and resolve conflict at an early stage.

Learning Outcomes

- Examine and understand the difference between destructive and constructive workplace conflict.

- Explore divergent conflict management styles, and how these influence decision-making processes.

- Practice key communication skills that help to de-escalate conflict situations.

- Understand workplace conflict, and how cultural differences may lead to divergent needs.

- Learn the skills necessary to effectively resolve organizational conflict, including how to have "difficult" conversations, where to have these conversations, and how to give "difficult" feedback.

Coaching and Mentorship Source: UCL (UK)

1. **Coaching**

Possibility to access either an external or internal coach. Available sample coach-client [contracts](#).

Why use a coach?

- Personal leadership style.

- Strategic planning / thinking / delivery.

- Conflict resolution and dealing with difficult behavior.

- Creating highly performing teams / groups / departments.

- Power / influence / negotiation.

- Building effective partnership.

- Sustaining competitive edge and performance.

2. **Mentoring**

Online [Mentoring Platform](#) available at UL. Platform provides the possibility for a unique online learning environment, as well as the chance to become a certified 'mentor' and/or 'mentee' (research shows that both mentors and mentees benefit from training). Find and select a mentor through a matching space with the Mentor Matching tool, which profiles and matches mentors and mentees.

Entrepreneurship
Source: UCL (UK)

Courses available to help build professional skills in business, enterprise or entrepreneurship.

1. **How to Engage with Business**

A short course (half-day) to develop the skills needed to present own research to a business audience. Participants learn to plan and structure conversations with businesses effectively and strategically.

2. **Consultancy Skills**

A short course to develop the skills you need to work with businesses as a consultant. Learn to work in cross-disciplinary teams to solve genuine, 'real-life' business problems.

Mock Interviews
Source: UCL (UK)

1. **Interview Coaching**

One-to-one role-play based coaching session with one of the Careers Consultants at UCL that will help interviewee prepare for the real thing. The appointment would generally involve:

- A role play exercise based around typical interview questions for whatever it is applicant has applied for.

- Feedback from the Consultant on all aspects of the performance (general interview style / technique and the suitability / strength of your answers for the role in question).

- Self-evaluation stage as well as advice to improve.

2. **Online Resource available from the University of Cambridge for Staff**

In-depth online material spanning from general interview advice (*i.e.*, preparation, types and stages, skype/online interviews), to case study interviews for consultancy, assessment centers, psychometric tests, **tailored interview guidance for postdocs** (*i.e.*, academic / industry / non-research job interviews), as well as online training videos.

MODULE 3: CAREERS IN ACADEMIA

Negotiation Skills
Source: Office of Postdoctoral Affairs, Cambridge

1. **How to Negotiate and Influence for Success**

Lecture specifically for Postdocs and Research Staff
Presenter: Richard Mullender

Former lead trainer at the National Hostage and Crisis negotiation Unit (Scotland Yard).

Richard's elite-level training gives you the rare power to influence whoever you're with, including work colleagues, friends and even your PI! All effective communication starts with listening; a skill that has long been undervalued in all walks of life. Sell your ideas and solutions using your prospect's most deeply held beliefs, rather than your own. It's amazingly effective.

Learning Outcomes
- Understand a range of influencing strategies and practice the interpersonal skills needed to use them.

- Prepare for situations requiring influencing and negotiation skills.

- Use a range of strategies to secure effective outcomes.