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Approaches to PhD training: how much structure is necessary?

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Important differences

UNIVERSITIES

- Award degrees
- Department (*Fakultät*) sets the rules (*Promotionsordnung*)
- Thesis project supervisor **IS** your '*Doktorvater*'

RESEARCH INSTITUTIONS

- **DO NOT** award degrees
- In addition to the institute/ group leader admission rules you have to comply with the university eligibility rules
- You always need to register at a university with a professor, **POTENTIALLY OTHER** than your project supervisor

Individual versus Programme PhD

Marketing

Recruitment

Research & Mentoring

Training

Career Services

“Apprenticeship” model

- via a personal network
- ads can be expensive

- by a professor/ PI:
- flexibility
 - less transparency

- depends on the mentor
- limited interaction with students outside of the lab

depends on how proactive the PhD student is and what is readily available locally

almost non-existent

Structured programme/ Graduate School

- higher visibility
- critical mass (10-20 positions)
- better use of resources

- central web-application platform, selection by a committee
- quality control
 - more transparency on selection criteria
 - inflexible timing

- thesis committee
- regular (usually once a year)
 - progress reports/ presentation
 - **collaborative**
 - joint events with other programmes

- formal programme with regular courses (both research and soft skills)
- often additional training grants for external courses

- often a structured programme, often with contribution by alumni/ industry partners
- individual coaching

PhD in Germany: How to find a structured PhD programme?

- DAAD database for international programmes:
[https://www.daad.de/deutschland/studienangebote/international-programs/en/?p=l&q=°ree\[\]=3&fos=0&lang\[\]=2&fee\[\]=0&sortBy=1&page=1&display=list](https://www.daad.de/deutschland/studienangebote/international-programs/en/?p=l&q=°ree[]=3&fos=0&lang[]=2&fee[]=0&sortBy=1&page=1&display=list)
- The German Rectors' Conference/ Hochschulrektorenkonferenz (HRK) search engine:
www.hochschulkompass.de/en/doctoral-studies/search-for-doctoral-study-opportunities/advanced-search.html
- DFG-funded Research Training Groups: 223 (42 with international partners)
www.dfg.de/en/funded_projects/current_projects_programmes/list/index.jsp?id=GRK
- Leibniz Graduate Schools and PhD Programmes (31):
www.leibniz-gemeinschaft.de/en/careers/the-next-generation-of-researchers/leibniz-graduate-schools/overview-of-leibniz-graduate-schools/
- International Max Planck Research Schools (IMPRS, 60):
<https://www.mpg.de/en/imprs>

DAAD

HRK

DFG


Leibniz-Gemeinschaft


MAX-PLANCK-GESELLSCHAFT

□ ENERGY

- Energy & Climate Research, HITEC (FZ Jülich)
- Energy Scenarios (KIT)
- Energy-related Catalysis (KIT)

□ HEALTH

- **Frontiers in Cell Signaling & Gene Regulation, SignGene (Germany-Israeli: MDC, HU Berlin, Charité, Technion, Hebrew University)**
- Cancer Biology (German-Israeli: DKFZ, WIS)
- **Molecular Cell Biology (MDC)**
- **Molecular Neurobiology (MDC)**
- Translat. Cardiovascular & Metabolic Medicine (MDC)
- Cancer Research (DKFZ)
- Radiation Sciences, RS2 (HMGU)
- Infection Research (HZI)
- Infection Biology H-CIB (HZI)
- Biophysics & Soft Matter (FZJ)
- Lung Biology & Disease (HMGU)
- Macromolecular Biosciences (HZG)

□ KEY TECHNOLOGIES

- Nanoelectronic Networks NANONET (HZDR)
- Integrated Materials Development for Novel High Temperature Alloys (KIT)
- Teratronics (KIT)

□ AERONAUTICS, SPACE & TRANSPORT

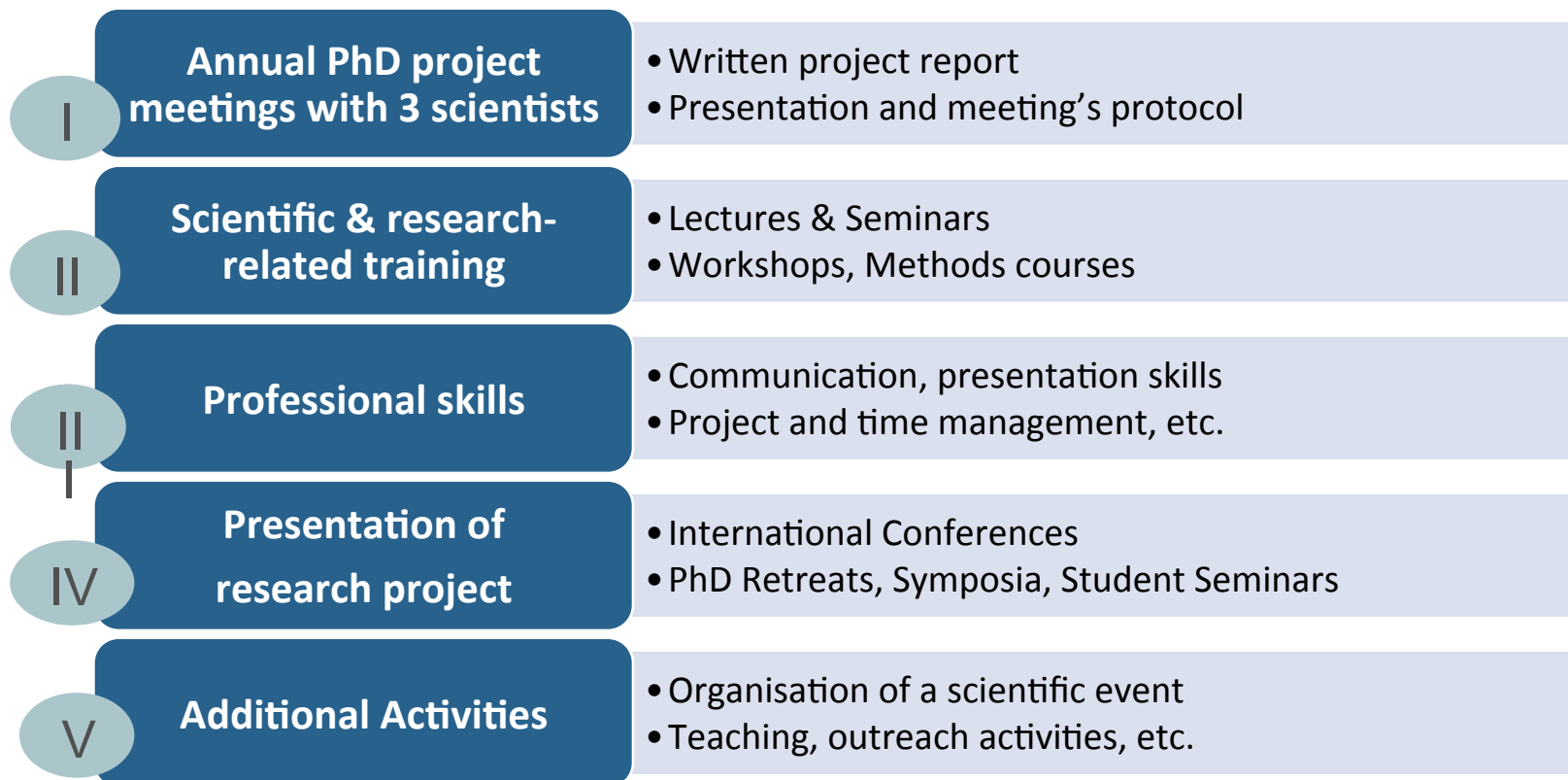
- Space Life Sciences (DLR)
- Security Technologies (DLR)

□ EARTH & ENVIRONMENT

- Polar & Marine Research, POLMAR (AWI)
- Earth System Sciences (AWI)
- Climate and Environment (KIT)
- Environmental Health, HELENA (HMGU)
- Ecosystem Services under Changing Land-use & Climate, ESCALATE (UFZ)
- Environmental Research HIGRADE (UFZ)
- Ocean System Sci. & Technology, HOSST (GEOMAR)
- Explorative Simulation in Earth Sci., GeoSim (GFZ)
- Mechanisms & Interactions of Climate Change in Mountain Regions, MICMoR (KIT)

□ STRUCTURE OF MATTER

- Partnership for Innovation, Educ. & Res., PIER (DESY)
- Hadron & Ion Research, HGS-HIRe for FAIR (GSI)
- Quark Matter Studies in Heavy Ion Collisions (GSI)
- Biointerfaces BIF-IGS (KIT)
- Plasma Physics, HEPP (IPP)



Next recruitment
call: June 2018

Deadline:
September 2018

Professional (transferable) skills training

Research environment:

- ethics & good scientific practice
- research funding
- IPR & commercialisation of research

Communication skills:

- presentations skills
- writing papers, grants, etc.
- communication with public

Personal effectiveness:

- time management
- project management
- how to stay motivated
- stress management &
- resilience

Career management:

- CV writing
- interview skills
- career pathways

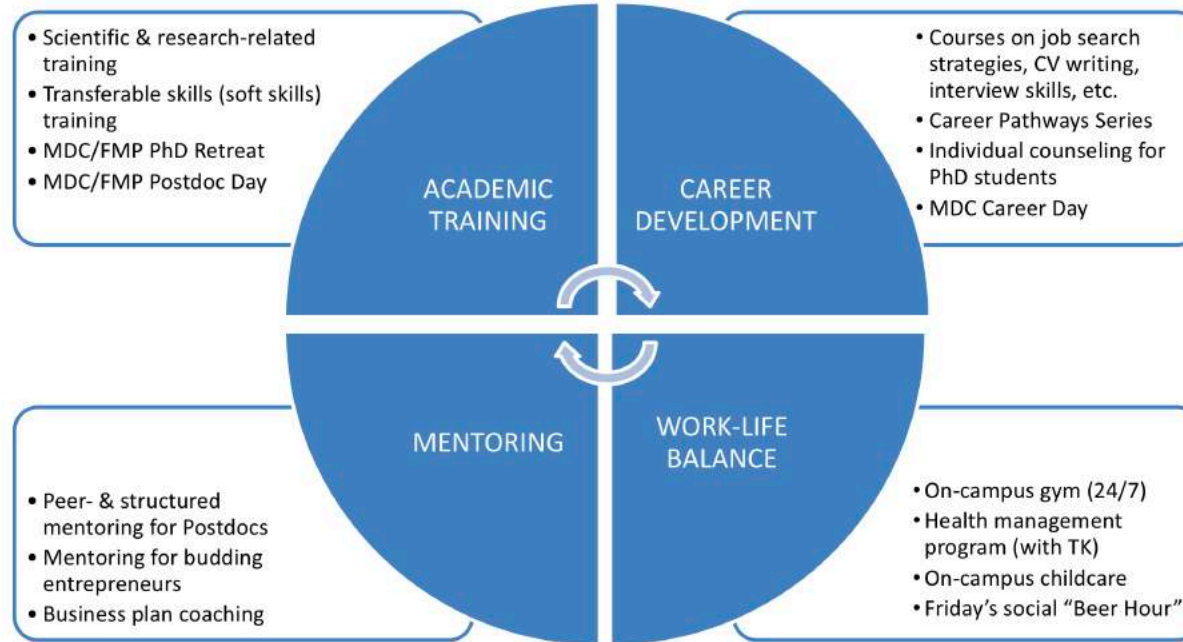
Helmholtz-wide PhD courses, organized in cooperation with Imperial College London und University of Surrey:

1. Research Skill Development
2. Presentation and Communication Skills
3. Career and Leadership Course



Training events at the MDC in 2017

- Computational Summer School
- Int. PhD Student Cancer Conference
- SignGene Winter School
- Grant Writing Workshop
- Explaining animal research
- Maximizing the impact of conferences
- Presentation Skills
- Processing and Analysis of Scientific Images
- Project Management
- Scientific Writing
- Statistics and R-Programming (x2)
- Teaching and Supervision
- Time Management



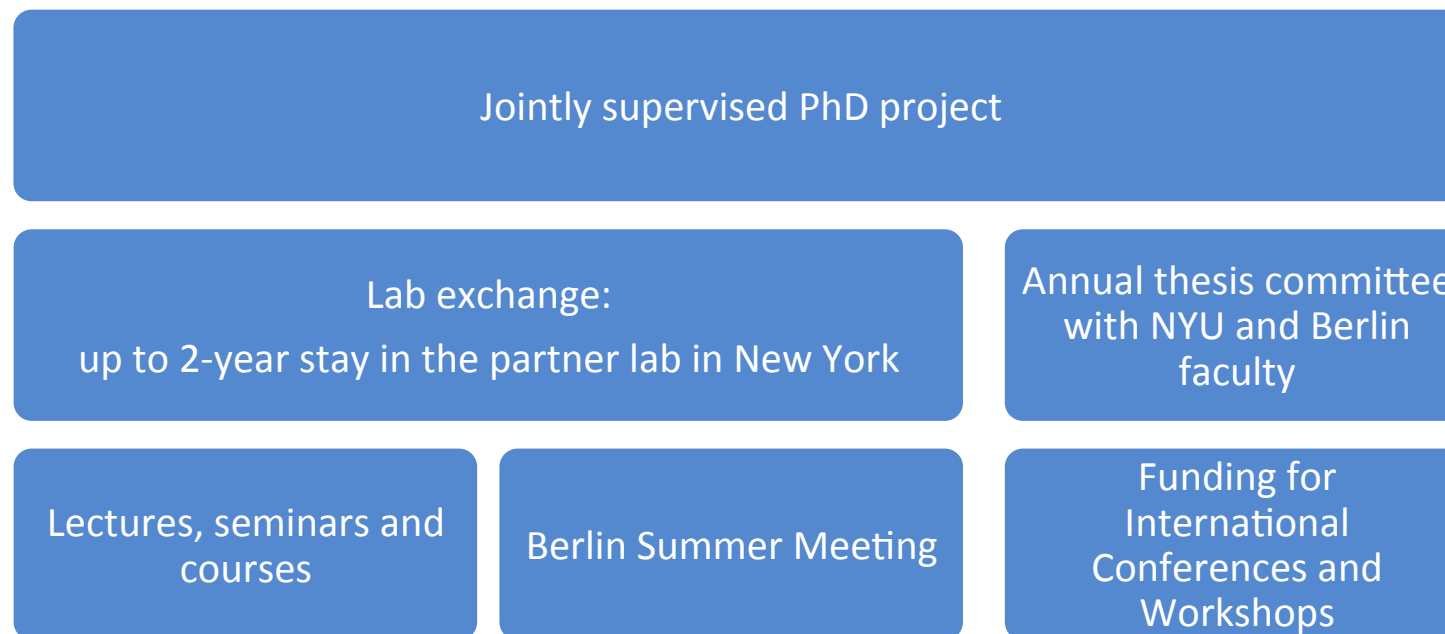
- How to build your own lab
- Interviews: the Theory & the Practice
- Bayer Visitor Day
- Get to know McKinsey&Company
- Research in pharmaceutical companies
- Five talks within the "Career Pathways" series, e.g. Patent Attorney as profession

- 50/50 - Career & Family

Example of the Curriculum Structure of a Collaborative Program

MDC-NYU PhD Exchange Program

<https://www.mdc-berlin.de/de/node/23846>



- **2005**, EU: “The European Charter for Researchers & the Code of Conduct for their Recruitment”
https://www.euraxess.at/sites/default/files/am509774cee_en_e4.pdf
- **2014**, The Royal Society Statement: “Doctoral students’ career expectations: principles and responsibilities”
- **2008**, UK: “Concordat to Support the Career Development of Researchers”
<https://www.vitae.ac.uk/policy/vitae-concordat-vitae-2011.pdf/@download/file/Vitae-Concordat-Vitae-2011.pdf>
- **2002**, “SET for Success: the Report of Sir Gareth Roberts' Review. The supply of people with science, technology, engineering and mathematical skills”
Universities and Research Councils UK received funding (**approximately £20M annually**) from the UK Government to implement the recommendations in Robert’s Review relating to postgraduate researchers and research staff. **Institutional money was ring-fenced for researcher development activities.**
- **1968**: The first UK GRADschool, a residential experiential course supporting the employability of postgraduate researchers outside higher education, was run by the Careers Research and Advisory Centre (CRAC) on behalf of the Science Research Council (SRC), now EPSRC.
- **Vitae.ac.uk** offers a multitude of very useful resources on professional development for researchers. Vitae membership enables organisations with a stake in realising the potential of researchers to build capacity in developing excellent researchers, bringing benefits to research outputs, innovation, society and the economy:
<https://www.vitae.ac.uk/researchers-professional-development>