

## Alternative Career Paths

**What can I do with a PhD?  
How to get there?**

PD Dr. Melanie Fritz  
Research Strategy and Research Support, ZI

### Professional orientation is... very similar to research project !

curiosity  
frustration  
flexibility  
patience  
self-initiative  
motivation

persistence  
tolerance  
optimism  
effort

}

like  
research ☺



**continuous  
process**



### Job opportunities with PhD



**Research - Science**

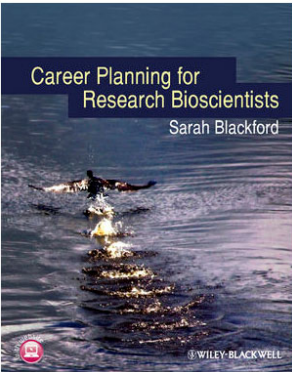


Any other... ??

Loads of opportunities!

**Objectives**

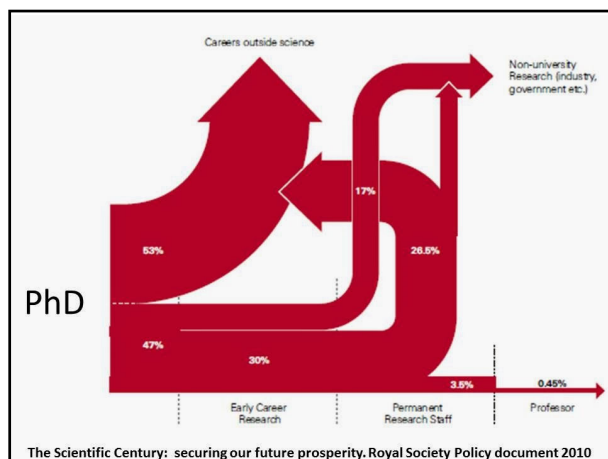
- Create awareness of your transferrable skills
- Broaden your perspective on job options
- Practical hands-on knowledge on how & where to start

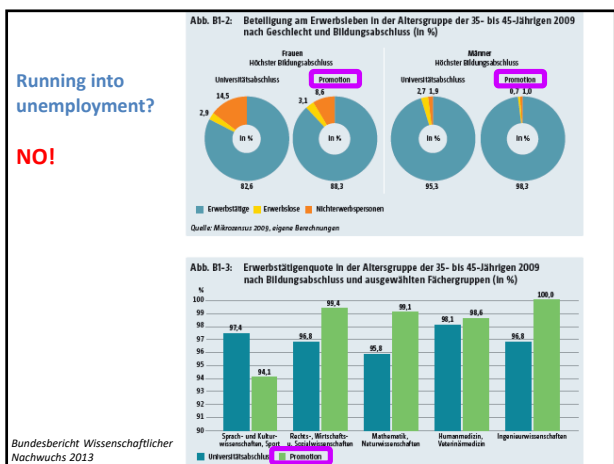
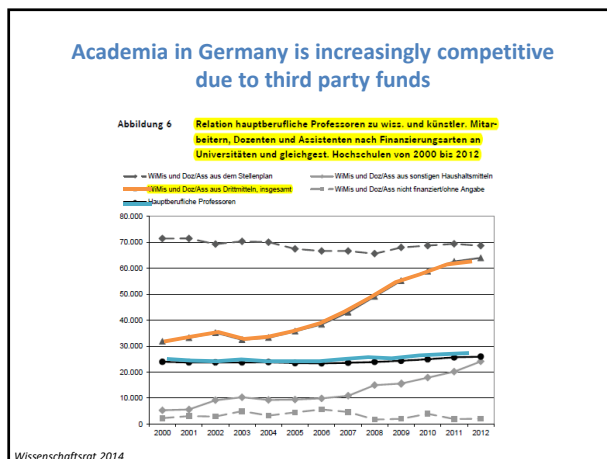
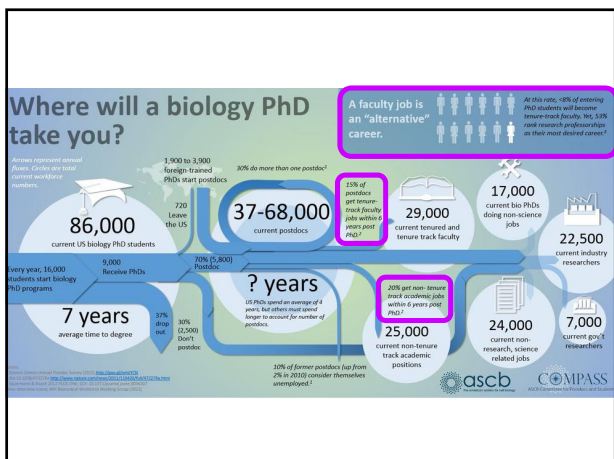


Available at ZI Library

### Overview

1. Some evidence on career reality with PhD
2. Examples of real bioscientists with alternative careers
3. Employers' wishes, jobs & where to find them
4. Self awareness
  - transferrable skills & evidence
  - preferences





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### Andrew - Lead scientist, large agribiotech company

**Job**

- Leads team of 3, designing protein function
- Highly interdisciplinary work, interaction with many other specialist groups, lot of communication and cooperation
- First position like post-doc role
- after 4 years more senior position, less practical work, more planning, leading, steering projects, preparing meetings, reporting on progress, communicating with other experts,
- learns more and more about business side

**Background**

- Biochemist, 2,5 years postdoc
- Wants better work-life balance = driver for industry job
- Job interview checked technical skills and personal abilities such as communication, team working, ability to work on new projects

**Career advices**

Highlighting the experiences most relevant to post

Career Planning for Research Bioscientists 2013

### Yfke - Senior medical writer, medical communications agency

**Job**

- Important to write well in different ways, using different media, for different audiences, comprehend field
- Travels to conferences to meet clinicians to support their presentations, prepares abstracts for medical congresses, assists in writing papers
- Interpersonal skills very important: negotiate, listen to clients, interpret their requirements, provide supportive role

**Background**

- Biologist, PhD, liked to write for university paper, press officer internship during PhD, interviews of scientists, press releases
- At conference she meets editor of practice journal, covers maternity leave, wins science writing competition

**Career advice**

Be proactive, do more than „just“ PhD or postdoc to get a wider CV & contacts

Career Planning for Research Bioscientists 2013

## Linda - Teacher training coordinator, public research institute in Berlin

### Job

- Continuing professional development for teachers in science to train them in latest experiments, show teachers how to make highly technical science interesting & exciting for their schools
- Works in small team with other PhDs

### Background

- 3 postdocs in G, USA, realized that lab life is not for her, but loves science communication
- Always involved in outreach, teaching & communicating science to children, science exhibitions,
- Saw job advertisement by chance

### Career facts

Combination of pro-activeness & self-awareness

Career Planning for Research Bioscientists 2013

## Antonella - research manager for EUROCORES program at ESF

### Job

Varied daily routine:

- organizing peer reviews, review panels, chairing scientific & management committees, presentations at conferences,
- overseeing reporting, making sure deadlines are kept,
- writing press releases & brochures, interviewing scientists, maintain website,
- liaising with different national agencies & EU organizations

### Background

- PhD in biochemistry,
- postdoc in industry with Marie Curie fellowship, after 2 years project management responsibilities, realized that she likes project management, international environment, science-policy work, event organization, travel, networking,
- applies for research management jobs (hundreds of applications), thanks to the skills acquired during postdoc lands job at ESF

### Career advice

Self-awareness, purposeful, flexible in terms of locations

[http://sciencecareers.sciencemag.org/career\\_magazine/previous\\_issues/articles/2008\\_09\\_19/credit.a0800140](http://sciencecareers.sciencemag.org/career_magazine/previous_issues/articles/2008_09_19/credit.a0800140)

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## Employers main requests

- Communication skills
- Team work / group work
- Time management
- Adaptability / flexibility
- Stress tolerance, performance under pressure
- Planning and organization
- Project management
- Networking
- Analytical skills, problem analysis & solving, creativity
- Ability to learn quickly
- Present themselves
- Motivated people
- Leadership potential, people who want to develop themselves
- Decision-making

EMPRESS Employers' Perceptions of Recruiting Research Staff and Students, 2005

## List of possible jobs with PhD

- Biostatistician
- Science communication
- Research manager
- Science writer
- Editorial company manager
- Consultant
- Graduate school manager
- Industry researcher
- Technology transfer / patents
- Non profit organization
- Policy advisor / think tank
- Marketing & sales
- Human resources / recruitment services
- Conference organizer
- Etc.
- Etc.
- Etc.

### Biostatistics/Bioinformatics Scientist – Validation (m/f)

As a member of the Biostatistics group, you will be responsible for the statistical validation of our products on both technical and clinical level. Fundamental to these products is sequencing of DNA from tumors by NGS technology (Illumina etc). You will cooperate with the MolecularHealth laboratory and medical staff, to define, enable, and carry out the validation of MH technology to comprehensively measure and ensure highly accurate results.

#### Your responsibilities

- Planning and scheduling of projects to validate specific aspects of our products
- Consulting in the selection or definition of appropriate reference material
- Contributing to a data infrastructure and automation of analyses
- Assessing the accuracy of genomic measurements, with focus on NGS
- In particular, assessing erroneous calling of genomic variants, including SNVs, short indels, CNAs, and structural variants
- Identify identifying points and means of quality improvement
- Documenting and communicating the results

#### Your skills and qualifications

- PhD or Masters in bioinformatics, biostatistics, medical statistics, biotechnology, or a related field
- Strong programming skills, preferably in R, Python, C/C++/Java, and/or SQL
- Proficiency in standard statistical concepts and methods
- Ability to work independently and willingness to acquire new skills
- Be dependable, focused, and team-oriented
- Familiarity with bioinformatic/molecular data, in particular NGS data
- Experience with lab certifications, e.g., CLIA or CAP
- Expertise in databases/SQL
- Prior work with data format standards (e.g., CDISC SDTM and ACR)
- Experience analyzing clinical/medical data and/or working in industry
- Good presentation and writing skills for scientific results
- Background in oncology
- Fluency in English (spoken and written) and German

#### We offer

- A varied, demanding scope of responsibility requiring a high level of autonomy
- Flat hierarchies and a motivated, skilled team
- A comfortable work environment located in the center of Heidelberg
- Competitive salary package and excellent opportunities for development in an international company

### Wissenschaftl. Mitarbeiter/in Schwerpunkt Algorithmenentwicklung

**Ihre Aufgaben**

- Selbständige wissenschaftliche Arbeit auf dem Gebiet der modellübergreifenden medizinischen Bildverarbeitung, Bildgebung und Informationstechnologien
- Mitarbeit an Projekten des Forschungsprogramms der Abteilung Digital Imaging und dessen Weiterentwicklung
- Unterstützung von Philips HealthTech bei der Umsetzung von Forschungsprojekten
- Aufbau und Pflege von Forschungskooperationen

**Ihr Profil**

Wir suchen Persönlichkeiten, die ergebnis- und marktorientiert handeln und im Team Spitzenleistungen erzielen wollen. Außerdem sollten Sie folgende Qualifikation mitbringen:

- **Hochschulabschluss** (Algorithmen/numer. Studien) Fachrichtung Informatik, Mathematik oder Physik und Promotion
- **Sehr fundierte wissenschaftliche Grundlagen** auf dem Gebiet der digitalen medizinischen Bildverarbeitung, insbesondere der computerebenen Detektion und Visualisierung, sowie Informationstechnologien
- **Spezialkenntnisse** auf dem Gebiet der Algorithmenentwicklung im Bereich der modellbasierten, multimodalen Segmentierung, sowie der Daten-/Informationsintegration und Visualisierung
- **Sehr gute Kenntnisse** im Bereich moderner numerischer Methoden und Optimierungsalgorithmen
- **Exzellente Kenntnisse** moderner Programmiersprachen (C++, Python, etc.) sowie Webentwicklung (HTML, JavaScript, SQL, Ruby on Rails, etc.)
- **Anwendungskenntnisse** in medizinischer Diagnostik, insbesondere im Bereich Kardiologie
- **Erfahrung in der Zusammenarbeit** mit klassischen Partnern
- **Sehr gute Kommunikations- und Teamfähigkeit**
- **Ausgeprägte Innovationsfähigkeit**
- **Sehr gute Deutsch- und Englischkenntnisse**

**Unser Angebot**

Unsere Produkte, Lösungen und Dienstleistungen verbessern das Leben von Millionen von Menschen auf der ganzen Welt. Sie können zu diesem Erfolg beitragen und in einem hochtechnologischen Umfeld in einem internationalen Expertenteam arbeiten.

Als Unternehmen für Gesundheit und Wohlbefinden liegt Philips das Thema Vereinbarkeit von Beruf und Privatleben unserer Mitarbeiterinnen und Mitarbeiter am Herzen. Wir bieten daher zahlreiche Angebote wie zum Beispiel „kids and more“ im Rahmen unseres Familienservices, das „Philips in Balance“ Gesundheitsprogramm sowie moderne Arbeitsmodelle zur Unterstützung an.

Die Hochschule Heilbronn mit ihren rund 8.300 Studierenden ist die größte Hochschule für angewandte Wissenschaften in Baden-Württemberg und gehört zu den führenden Hochschulen des Landes. Ihr Kompetenz-Schwerpunkt liegt auf den Bereichen Technik, Wirtschaft und Informatik. Für das Rektorat am Campus Heilbronn-Sonthofen suchen wir zum nächstmöglichen Zeitpunkt die/den

### persönliche Referentin/persönlichen Referenten des Rektors

Kennziffer 648-R

**Das Aufgabengebiet umfasst:**

- Recherche zu Themen aus dem gesamten Hochschulbereich, insbesondere die Verfolgung der Aktivitäten - der Rektorenkonferenz der Hochschulen für angewandte Wissenschaften (landesweit Baden-Württemberg) und - der Hochschulrektorenkonferenz (bundesweit),
- Beratung des Rektors und Ausarbeitung von Entscheidungsvorlagen,
- Projektstellung bzw. Mitwirkung an Projekten des Rektors,
- Erstellen von Reden, Vorträgen, Präsentationen, Berichten, Grußworten und Stellungnahmen des Rektors,
- Vor- und Nachbereitung des Tagesablaufs des Rektors,
- Vor- und Nachbereitung von Tagesordnungspunkten für/aus Sitzungen und Besprechungen,
- Sichtung und Fertigung von Korrespondenz, Anträgen und anderen Unterlagen,
- Organisation von Besuchen und Betreuung von Besucherinnen und Besuchern,
- enge übergreifende Zusammenarbeit mit den Gremien der Hochschule.

**Wir erwarten von Ihnen:**

- ein abgeschlossenes **wissenschaftliches Hochschulstudium (Promotion ist von Vorteil)**,
- eine dem Aufgabengebiet **entsprechende Berufserfahrung, idealerweise in einer Wissenschaftseinrichtung**,
- **Kompetenzen und Erfahrungen im Projektmanagement** sowie im selbstständigen Erstellen von Texten,
- **die Fähigkeit, komplexe Zusammenhänge zu durchdringen und darzustellen, sowie ausgezeichnete kommunikative, organisatorische und konzeptionelle Fähigkeiten,**
- einen sicheren Umgang mit der **EDV**, insbesondere mit den Microsoft-Office-Produkten,
- die **fließende Beherrschung der deutschen und englischen Sprache in Wort und Schrift (weitere Fremdsprachenkenntnisse sind von Vorteil)**,
- ein **sicheres und gewandtes Auftreten** sowie
- ein hohes Maß an **Flexibilität, Einsatzbereitschaft** (auch über die üblichen Arbeitszeiten hinaus) und Loyalität.

### Employers' frequent perception of people who have worked in research

- Stereotype of „lone-working, introverted academic“
- „research isn't real work“
- **PhDs and PostDocs unable to list their skills, do not articulate them well**
- Level of maturity is advantage
- PhD is seen as study, not as very large & complex project
- Lack of commercial awareness, especially when long term postdoc
- Often too „narrow“ experience, without holistic view
- Don't know how to access PhDs

**→ Find your skills & communicate evidence for any skill & competency!**

EMPRESS Employers' Perceptions of Recruiting Research Staff and Students, 2005

### Where to find jobs?

#### 1. Visible job market

Only around 20-30% of jobs are visibly advertised!

**Where?**

- Search engines**
  - stepstone.de (general)
  - academics.de (research & research management)
  - jobvector.de (natural sciences)
  - researchgate.net/jobs (research & research management)
  - duz-wissenschaftskarriere.de (research & research management)
  - jobware.de (general)
  - pharmajobs.com (general)
  - myscience.de/jobs/search (general)
  - lifesciencenord.de (life science related jobs in the North)
  - fazjob.net (general)
  - stellenmarkt.sueddeutsche.de (general, South)
- Company / organization websites**
- Job faires**

Use your literature browsing & search skills ☺

Use your conference networking skills ☺

### Where to find jobs?

#### 2. The hidden / „grey“ job market

**Proactive NETWORKING!  
„planned happenstance“**

**Who?** Current colleagues, former colleagues, acquaintances, friends, friends from friends, association colleagues, sports colleagues, family etc.

**How?** Talk to people about their jobs → *insider info*

- Which qualifications required?
- Which special skills / capabilities required?
- What are typical tasks?

- Tell them your interests!

**- AT ANY OPPORTUNITY !!**

- Coffee breaks
- Before / after meetings



### Networking strategies

Requires subtle approach - Not: „Do you have a job?“ Rather:


- ask about their sector, job,
- connect with people they know
- show interest / knowledge about their area
- talk about what you are interested in, what you have done so far

**How to extend network?**

- Organize & join events
- Social media (LinkedIn, XING, ResearchGate)

**How to approach people?**

- Are clear what you want to talk about
  - Have a series of questions prepared
  - **Have key information about yourself prepared**
- At event: check out who is there, do research about their organization
- Rather target less senior people first



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  - **preferences**

PHD task or activity	Skills/competency
I wrote a 50,000 word thesis	Ability to present and organise large amounts of information in a clear manner. Fluency in Microsoft Office packages.
I had 3 supervisors or my supervisors didn't get on.	Negotiation skills.
I analysed loads of data.	Analysis of complex data and presentation of emerging conclusions and concepts.
I conducted interviews for my research project.	Questionnaire design (if applicable). Experience in qualitative and/or quantitative analysis. Sensitive to the needs of others. Diplomacy and confidentiality.
Experiments or theory testing didn't work but I found out why and tried again.	Problem-solving skills.
I published papers, book chapters and presented at conferences.	Ability to communicate complex ideas effectively in a range of formats.
I completed my PhD in three years.	Ability to plan a project and deliver it to agreed timelines.
I did a PhD.	I am able to work with minimum supervision as well as part of a team.
I organised a conference.	Event planning skills.
My research group was international or I spent some time abroad for my research.	Ability to interact with colleagues from diverse professional backgrounds to successfully work towards common goals.
I took part in science communication or public engagement events such as science festivals, visiting schools to explain your research, etc.	Ability to communicate effectively to a range of audiences.
I was in charge of a piece of equipment or I set up a research seminar series.	Initiative and self-reliance.

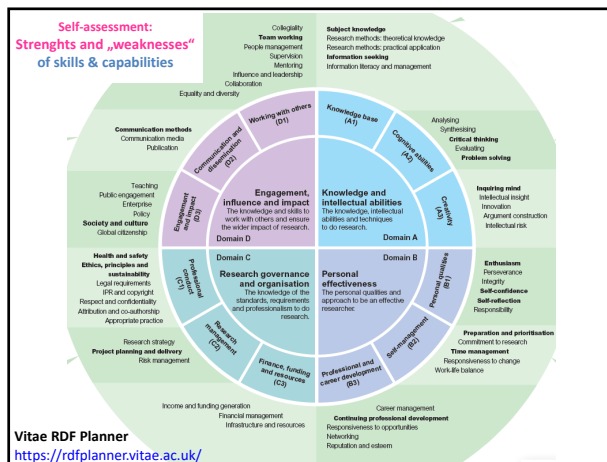
## Skills from PhD and research work → transferable to any working environment!

Apart from providing expert knowledge, research work trains in

- Analysis
- Interpretation
- Abstract reasoning
- Problem solving & critical questioning
- Conceptualizing new ideas
- Systematizing content & ideas, material
- Synthesis of ideas & concepts
- Learning new fields & subjects
- Writing complex content understandably & in a structured way
- Presenting understandably
- Supervising younger team members
- Funding acquisition
- Self-organization, self-motivation
- Project management

curiosity persistence  
frustration tolerance  
flexibility optimism  
unconventionality  
patience effort  
self-initiative motivation

„researcher personality“



## What skills are behind to what you like?

- You like **research...**
  - Researching is asking questions and seeking ways to find answers using technical means and through collaboration with other people
  - LOTS of opportunities for jobs using these skills
- You like **teaching...**
  - Teaching is a form of active communication to help people understand complex materials
  - Science writing, communication, public relations, consulting etc.

## What are your wishes?

### Imagine your dream job conditions



### Essential:

#### Identify your skills, sell & present them

- Which are your skills, which motivate you?
- Explain them using examples, translate specialized skills and interests into „everyday language“

#### Example: Teaching

- Developed and delivered presentations on variety of complex topics in psychology for audiences ranging from 25-100 people
- Supervised 50 students working on lab-based research projects
- Chaired group discussions that reached consensus on changes in curriculum

### What should I do? equivalents to research project

#### „Research objective“: Identify job opportunities

- Self-awareness „own preliminary work“
  - Skills & capabilities – the ones you like
  - Your preferences for how a job should be
- Job market
  - Start analysis „literature review – state of the art“
  - Identify gaps „research need“
  - Define your development plan „research project plan“
    - Which types of jobs?
    - Which (additional) skills / competencies needed? (→ trainings / courses)
    - Which search agents at which search engines?
    - Which potential employers?
  - Execute plan „perform the research project“

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### Useful links

- <https://myidp.sciencecareers.org/?AspxAutoDetectCookieSupport=1> - Individual Development Plan to identify your skills achieved during your research work and find suitable career options to fit your interests
- <https://www.science.org/content/article/so-you-think-you-have-skills> Very useful Science Careers article about the transferable skills built in research
- <https://biosciencecareers.org/> - Blog with very interesting information and ideas on career planning for research bioscientists
- <https://www.science.org/content/article/careers-away-bench> - Science Career Booklet with interesting information & career examples
- <https://www.science.org/content/resource/career-trends-informed-job-search> Science Career Booklet with description of all steps for successful job search
- <https://www.science.org/content/article/hidden-talents-hungry-markets-phds-have-many-skills-offer-industry> Really encouraging Science Career Article
- <https://www.science.org/content/article/tooling-breaking-free-academia-test-and-quiz> Science Career Article with what is needed to land a job outside
- <https://www.science.org/content/article/person-european-career-tour-research-research-management> Personal real report on moving from academia to research management
- <https://www.science.org/content/article/mastering-your-phd-career-management-consulting> Science Career article about how PhD work and skills acquired relate to working in consulting
- <https://www.science.org/content/article/careers-research-support> Science Career article with examples of real people who have moved from research to research support jobs

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curiosity      persistence  
frustration tolerance  
flexibility      optimism  
unconventionality  
patience      effort  
self-initiative  
motivation

continuous  
process

