

# Good Scientific Practice

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# Proposals for Safeguarding Good Scientific Practice [1]

- ▶ first set out in 1997 by DFG (2013)
  - ▶ case of scientific misconduct led to a wide discussion, whether science has sufficient control mechanisms for quality assurance
- ▶ derived from the work of an international committee
- ▶ provide guidance and form the basis for a self-regulation system
  - ▶ **honesty towards oneself and towards others**
  - ▶ the recommendations provide a framework for the deliberations and measures which each institution have to conduct for itself
- ▶ ever-present element in DFG research funding

# Organization

- ▶ heads of universities are responsible for organizational structure
  - ▶ allocate direction, supervision, conflict resolution, quality assurance
- ▶ every scientist is personally responsible for his or her own conduct
- ▶ members of a working group must be able to rely on each other
- ▶ cooperation allows the findings to be communicated, subjected to criticism, integrated
  - ▶ organized forms for this process (e.g. regular seminars)

# Performance Evaluation

- ▶ always give originality and quality precedence before quantity
- ▶ quantity
- ▶ performance
  - ▶ formal requirements: length of Bachelor, Master or Ph.D. thesis, number of publications
  - ▶ reputation of the journals ('impact factor')
- ▶ quality
  - ▶ originality, level of 'innovation'
  - ▶ comparison to the relevant state of the art

# Learned Societies

- ▶ work out the principles of good sc. pr. for their area
- ▶ establish common position of their member on
  - ▶ questions of standards and norms of professional conduct in their disciplines
  - ▶ ethical guidelines for research

# Scientific Journals

- ▶ commit to best international practice with regard to the originality and criteria for authorship
- ▶ reviewers shall be bound to respect confidentiality and disclose conflicts of interest
- ▶ publications shall
  - ▶ describe the findings completely and understandable
  - ▶ give correct and complete references to previous works
  - ▶ repeat previously published findings only inasmuch as it is necessary

# Guidelines for Research Proposals

- ▶ issue clear guidelines on the requirements for information in research proposals
  - ▶ previous work must be represented specifically and completely
  - ▶ publications must be precisely cited
  - ▶ projects must be described in the way in which they are intended to be carried out
- ▶ applicants must acknowledge having noted these principles

# Rules for the Use of Funds

- ▶ university as a grantee must have rules for good scientific practice
- ▶ funding institutions should design specific legal relationship between themselves and grantees
  - ▶ proper conduct
  - ▶ reaction to misconduct

# Reviewers

- ▶ funding organizations shall specify the criteria which they wish reviewers to apply
- ▶ reviewers must disclose conflicts of interests
- ▶ reviewers must follow rules of confidentiality
- ▶ analogous rules must be established for members of decision-making bodies of funding organizations

# Ombudsman for Science

- ▶ DFG should appoint an independent authority
- ▶ advise and assist scientists in questions of good scientific practice, its impairment through scientific dishonesty
- ▶ give an annual report
- ▶ goal: support public confidence in good scientific practice

## Whistleblowers

- ▶ must not suffer disadvantage in their own scientific career
- ▶ must be protected in appropriate manner by the independent mediator
- ▶ the information must be provided in a 'good faith'

# At our University

- ▶ **Integrity** and **truth** have highest priority
- ▶ Be **self-critical**
- ▶ Select references and data properly (with respect to discipline specific rules)

# Work in Groups

- ▶ Everyone is responsible for his/her work
- ▶ Heads are responsible for scientific practice in their group
- ▶ Communication is essential
- ▶ Communicate data and preliminary results
- ▶ Double check each others results
- ▶ Results have to be
  - ▶ Comprehensible
  - ▶ Reproducible

# Mentorship

- ▶ Teach the principles of good scientific practice to students
- ▶ Lead by example

# Primary Data

- ▶ Primary data has to be stored for at least 10 years
- ▶ For persons with reasonable interest access has to be granted
- ▶ All results have to be documented precise and comprehensible

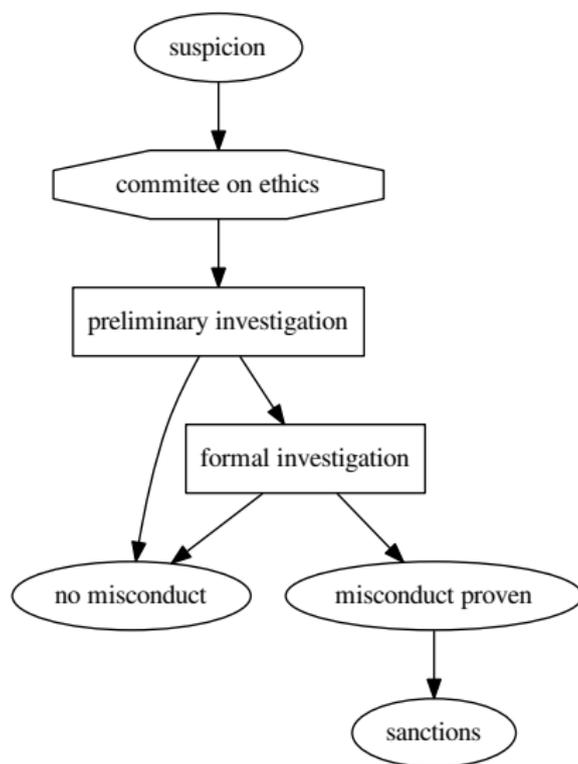
# Publications and authorship

- ▶ Authors are responsible for their publications
- ▶ Results and methods have to be described
- ▶ Preliminary work has to be cited
- ▶ Only who made contributions to the work can be named as author
- ▶ All contributors have to agree with a publication
- ▶ All contributors have to be named
  - ▶ This also includes students, forerunners and competitors

# Scientific Misconduct

- ▶ Scientific misconduct is
  - ▶ Making false statements
  - ▶ Disrespecting intellectual properties
  - ▶ Obstructing research
- ▶ C.v.O. University will investigate in any suspicion of scientific misconduct
- ▶ The committee on ethics and research impact assessment is responsible for that

# Procedure in Case of Suspected Misconduct



# Preliminary Investigation

- ▶ Confidentially
- ▶ The affected person is heard and can defend himself/herself between two weeks
- ▶ The whistleblower's name is not communicated
- ▶ If there are indications for misconduct a formal investigation is started between two weeks
- ▶ Otherwise the process is stopped

# Formal Investigation

- ▶ The Presidential Chair is informed
- ▶ The affected person is heard and can defend himself/herself
- ▶ If necessary external experts from Uni Bremen are contacted
- ▶ The whistleblower's name may be communicated
- ▶ If misconduct can be proven, the Presidential Chair imposes sanctions

# Sanctions in Case of Misconduct

- ▶ Warning
- ▶ Termination of contract
- ▶ Exmatriculation
- ▶ House ban
- ▶ Legal consequences
- ▶ ...

# What is part of a project Proposal?

- ▶ Description of **State of the Art** and **preliminary work**
- ▶ Work Programme
  - ▶ Duration, detailed description, steps
- ▶ Data Handling
  - ▶ **How will data made available** to other researchers?
- ▶ **Ethical aspects**
- ▶ **Bibliography**
- ▶ Information on participants
  - ▶ Including curriculum vitae, publications
  - ▶ Cooperation partners
    - ▶ Including commercial enterprises (restrictions for state aid may apply)

# The DFG on Data Handling

*Improving the management and handling of research data is a priority both for national and international research organisations and for science in general. In order to enhance the long-term archiving and curation of research data, the DFG funds projects that seek to achieve an efficient reuse of research data. [1]*

# First-time Proposals

The DFG takes into account if one is applying for the first time

- ▶ Applicants may not have own publications in the field of research
  - ▶ Give a general list of your publications instead
- ▶ First time applicants may be inexperienced in writing a project proposal
  - ▶ This may be noted in the proposal and reviewers shall take it into account

# Security-relevant Research

Results in research may be misused for lower purposes (so-called Dual-Use-Dilemma)

- ▶ Someone may use results from research to harm people
- ▶ Research is not “good” or “bad” per se
- ▶ This does also include computing science
  - ▶ E.g. security systems, robotics, social media, . . .
- ▶ Scientists are responsible for their work
- ▶ A scientist’s responsibility goes beyond legal restrictions

# What to do?

- ▶ Think about risks
- ▶ Minimize risks
  - ▶ E.g. protect research data against unauthorized access
- ▶ Inform about risks
- ▶ Some results might be published at a later point or not at all
  - ▶ This must be a last effort



Deutsche Forschungsgemeinschaft.

*Safeguarding Good Scientific Practice: Proposals for Safeguarding Good Scientific Practice.*

Wiley-VCH, 2013.

last seen on 10/06/2015.



Deutsche Forschungsgemeinschaft.

Proposal preparation instructions: Project proposals, 2014.

DFG form 54.01 – 06/14.



Deutsche Forschungsgemeinschaft and Deutsche Akademie der Naturforscher Leopoldina e.V.

*Scientific Freedom and Scientific Responsibility:*

*Recommendations for Handling Security-Relevant Research.*

2014.



Presidential Chair of C.v.O. University of Oldenburg.

Verfahren bei verdacht auf wissenschaftliches fehlverhalten:

Verfahrensordnung, 2000.



Presidential Chair of C.v.O. University of Oldenburg.

Leitlinien guter wissenschaftlicher praxis an der carl von ossietzky universität, 2002.