DFG Recommendations

“SAFEGUARDING GOOD SCIENTIFIC PRACTICE“

DFG Recommendation 1:
Good Scientific Practice

[1]: p. 69

- **Rules of good scientific practice shall include principles for the following matters (in general, and specified for individual disciplines as necessary):**
  - fundamentals of scientific work
    - observing professional standards
    - documenting results
    - consistently questioning one's own findings
    - practising strict honesty with regard to the contributions of partners, competitors, and predecessors
  - cooperation and leadership responsibility in working groups (Recommendation 3)
  - mentorship for young scientists and scholars (Recommendation 4)
  - precedence of originality and quality of work (Recommendation 6)
  - securing and storing primary data (Recommendation 7)
  - scientific publications (Recommendation 11+12)

DFG Recommendation 3: **Organization**

[1]: pp. 70-71

- **Working groups:**
  - Members must be able to rely on each other.
  - Cooperation must allow the findings to be communicated, subjected to reciprocal criticism and integrated into a common level of knowledge and experience.
  - The organization does not have to be hierarchical, but there will always be a functional division of responsibilities.

- **Leadership:**
  - Demands presence and awareness.
  - The function becomes void when these are no longer sufficiently assured and when the leaderhship function cannot be exercised responsibly on the basis of the knowledge of all relevant circumstances (optimum and maximum size of a group).
  - The “leadership chain” must not become too long.

DFG Recommendation 4:
Supervision of Young Scientists

[1]: pp. 71-72

- Working groups as a rule consist of a mix of older and younger, experienced and less experienced scientists. Leading a group therefore includes the responsibility of ensuring that every younger member of the group receives adequate supervision.

- **Graduate Students:**
  - Must have a senior partner primarily responsible for his or her progress (primary mentor).
  - Has to be supervised by two additional experienced scientists who are available for advice and help and who also discuss the progress of the young researchers‘ work with them at annual intervals (good practice in Germany).

- **Mentoring early career researchers:**
  - The obligation includes helping them to complete their studies within a reasonable time frame and supporting their subsequent career in research.
  - A supervision concept is recommended for doctoral researchers. It should set out the fundamental requirements it imposes on the supervisor and the doctoral researcher and not exclude modifications which become necessary due to changes in the framework conditions. The supervision concept should also contain measures to support subsequent career planning.

DFG Recommendation 6:
Performance Evaluation

[1]: pp. 73-74

- Universities and research institutes shall always give originality and quality precedence before quantity in their criteria for performance evaluation. This applies to academic degrees, to career advancement, appointments and the allocation of resources.

- **Conditions of work:**
  - Quality of work and of publications must be the primary consideration.
  - Criteria that primarily measure quantity create incentives for mass production and are therefore likely to be inimical to high quality science and scholarship.
  - Findings must be controlled and replicated before being submitted for publication.

- **Evaluation of work:**
  - An adequate evaluation of the achievements always requires qualitative criteria in the narrow sense: publications must be read and critically compared to the relevant state of the art and to the contributions of other individuals and working groups.
  - Wherever achievement has to be evaluated – in reviewing grant proposals, in personnel management, in comparing applications for appointments the evaluators and reviewers must be encouraged to make explicit judgements of quality before all else.

DFG Recommendation 7:
Safeguarding and Storing of Primary Data

[1]: pp. 74-76

- Primary data includes: measurement results, collections, surveys, cell cultures, specimens of material, archaeological finds and questionnaires.

- **Retention of primary data and research records:**
  - Primary data as the basis for publications shall be securely stored for ten years in a durable form in the institution of their origin.
  - Experiments and numerical calculations can only be repeated if all important steps are reproducible. For this purpose, they must be recorded.
  - As a rule, the original data and documentation remain where they were created. However, duplicates can be made or access rights specified.
  - Established practice: Storing a duplicate of the complete data set on which a publication is based, together with the publication manuscript and the relevant correspondence.

- **Use of primary data:**
  - Researcher(s) who collect the data are entitled to use it.
  - During a research project, those entitled to use the data (possibly subject to data protection regulations) decide whether third parties should have access to it.
  - If more than one institution is involved in collecting the data, an agreement must be drawn up to regulate the matter.

DFG Recommendation 11 & 12:
Authorship & Scientific Journals

[1]: pp. 82-84

- **Authors of an original scientific publication:**
  - They are always jointly responsible for their content.
  - They shall be all those, and only those, who have made significant contributions
    - to the conception of studies or experiments,
    - to the generation, analysis and interpretation of the data,
    - to preparing the manuscript

    and who have consented to its publication, thereby assuming responsibility for it.

- **The following contributions on their own are not sufficient to justify authorship:**
  - merely organisational responsibility for obtaining the funds for the research
  - providing standard investigation material
  - the training of staff in standard methods
  - merely technical work on data collection
  - merely technical support, such as only providing equipment or experimental animals
  - regularly providing datasets only
  - only reading the manuscript without substantial contributions to its content
  - directing an institution or working unit in which the publication originates

➢ To avoid conflicts concerning authorship, timely and clear agreements are recommended, in particular when there is a large number of contributors to the findings, to serve as guidelines for resolving disputes.