

University of Tübingen Guidelines for Ensuring Good Scientific Practice

The University of Tübingen Senate on February 11, 2021 has passed as statutes the following Guidelines for Ensuring Good Scientific Practice, in accordance with Section 3(5), Section (8)(5) and Section 19(1)(2)(10) of the Baden-Württemberg State University Law (LHG) of January 1, 2005 (Law Gazette p. 1) version dated April 1, 2014 (Law Gazette p. 99), last amended by Article 1 of the Law dated December 17, 2020 (Law Gazette p. 1204):

Introduction

I. At the meeting on May 25, 2001, the University Senate agreed guidelines for ensuring good scientific practice and for dealing with scientific misconduct as well as rules for the prevention of scientific misconduct. Seventeen recommendations of the DFG for ensuring good scientific practice at the same time accompanied the resolution as an appendix. Since 2000, this Senate resolution together with appendices has been handed out to all newly-employed academic staff at the university. On coming into effect, these statutes supersede the previous resolution of the Senate.

II. In the introduction to the rules of procedure of the University of Tübingen on dealing with scientific misconduct (Senate resolution of November 21, 2013) the Senate stated that (extract):

The most important tasks of the University of Tübingen are the cultivation, development and communication of the sciences, the objectives of which are to acquire knowledge and establish truth. Intrinsic to the process of scientific work in relation to this are:

- experimental and intellectual diligence
- absolute integrity about acknowledging the efforts of others
- total honesty about oneself and with regard to others
- long-term documentation of original data
- verifiability and reproducibility of scientific results
- avoidance of scientific misconduct

Scientists, students and all other employees of the University of Tübingen are fully committed to these maxims of academic ethics that apply equally to all university disciplines. Upholding these principles of good scientific practice demands a set of regulations, which must be consistently communicated and university members encouraged to apply them, as well as the appropriate organization of all university bodies, with clear allocation of responsibilities at all organizational levels.

The President's Office and Senate of the University of Tübingen undertake to create the bodies, staff structures and other conditions necessary to ensure good scientific practice and to develop them continually in accordance with future insights.

III. In the above rules of procedure, the Senate has laid down what (Section 1 Rules of Procedure) is regarded as misconduct at the university and how (Section 2 Rules of Procedure) misconduct in science is to be avoided at the university.

The Senate hereby reaffirms these (I. – III.) repeated statements. It moreover states as follows:

Section 1 Adoption of the DFG's Guidelines for Ensuring Good Scientific Practice

Principles

Guideline 1: Commitment to the general principles

With these statutes passed by the Senate, the University of Tübingen establishes and in accordance with Section 2 announces the rules for good scientific practice for the attention of its academic members. The Senate requires members to comply with these rules with due regard for the type of research undertaken in the relevant subject area. Individual researchers are responsible for ensuring that their own conduct complies with the standards of good scientific practice. That means that every scientist must work *lege artis*, maintaining strict honesty in attributing their own contributions and those of others, rigorously questioning all findings, and permitting and promoting critical discourse within the research community. The principles of good scientific practice are set out in the following guidelines.

Guideline 2: Professional ethics

Researchers at the University of Tübingen are responsible for putting the fundamental values and norms of research into practice and advocating for them. Education in the principles of good research begins at the earliest possible stage in academic teaching and research training. Researchers at all career levels regularly update their knowledge about the standards of good scientific practice and the current state of the art. The University of Tübingen expects and encourages experienced and early career researchers to support each other in a process of continuous mutual learning and ongoing training and maintain a regular dialogue.

Guideline 3: Organizational responsibility of university management

The President's Office and the responsible bodies of the University of Tübingen create and ensure the basic framework for research. They are responsible for ensuring adherence to and the promotion of good practice, and for appropriate career support for all researchers. The President's Office and the responsible bodies guarantee the necessary conditions to enable researchers to comply with legal and ethical standards. The basic framework includes clear written policies and procedures for staff selection and development as well as for early

career support and equal opportunity. The President's Office and the responsible central bodies are hereby responsible for ensuring that an appropriate organizational structure is in place at the institution. They must make certain that the tasks of leadership, supervision, quality assurance and conflict management are clearly allocated in accordance with the size of individual research work units, and suitably communicated to members and employees. With regard to staff selection and development, due consideration is given to gender equality and diversity. The relevant processes are transparent and avoid unconscious bias as much as possible. Suitable supervisory structures and policies are established for early career researchers, and will be expanded as necessary. Honest career advice, training opportunities and mentoring are offered to researchers and research support staff.

Guideline 4: Responsibility of the heads of research work units

The head of a research work unit at the University of Tübingen is responsible for the entire unit at their respective level. Collaboration within the unit is designed such that the group as a whole can perform its tasks, the necessary cooperation and coordination can be achieved, and all members understand their roles, rights and duties. The leadership role includes ensuring adequate individual supervision of early career researchers, integrated in the overall institutional policy, as well as career development for researchers and research support staff. Suitable organizational measures are in place at the level of the individual unit and of the leadership of the university and/or faculty/department/institution to prevent the abuse of power and exploitation of dependent relationships. For this it is necessary that the size and the organization of the unit are designed to allow leadership tasks, particularly skills training, research support and supervisory duties, to be performed appropriately. The performance of leadership tasks is associated with a corresponding responsibility. Researchers and research support staff benefit from a balance of support and personal responsibility appropriate to their career level. They are given adequate status with corresponding rights of participation. Through gradually increasing autonomy, they are empowered to shape their career.

Guideline 5: Dimensions of performance and assessment criteria

To assess the performance of researchers, a multidimensional approach is called for; in addition to academic and scientific achievements, other aspects may be taken into consideration. Performance is assessed primarily on the basis of qualitative measures, while quantitative indicators may be incorporated into the overall assessment only with appropriate differentiation and reflection. Where provided voluntarily, individual circumstances stated in *curricula vitae* – as well as the categories specified in the German General Equal Treatment Act (*Allgemeines Gleichbehandlungsgesetz*) – are taken into account when forming a judgment. It is well-known at the University of Tübingen and will if necessary be further emphasized that high-quality research is oriented towards criteria specific to individual disciplines. In addition to the generation of and critical reflection on findings, other aspects of performance are taken into consideration in the evaluation process. Examples include involvement in teaching, academic self-governance, public relations, and knowledge and technology transfer; contributions to the general good of society may also be recognized. An

individual's approach to research, such as an openness to new findings and a willingness to take risks, is also considered. Appropriate allowance is made for periods of absence due to personal, family or health reasons or for prolonged training or qualification phases resulting from such periods, and for alternative career paths or similar circumstances.

Guideline 6: Ombudspersons

With its rules of procedure the University of Tübingen has ensured that there is a number of ombudspersons to whom their members and employees can turn with questions relating to good scientific practice and in cases of suspected misconduct (for options see end of this guideline). This also applies to substantiated anonymous notifications that are also examined by the ombudspersons (see Guideline 18 below). The university takes sufficient care to ensure that people are aware of who the ombudspersons at the institution are. For each ombudsperson there is a designated substitute in case there is any concern about conflicts of interest or in case the ombudsperson is unable to carry out their duties. When making appointments, the university ensures that the ombudspersons cannot serve as members of a central governing body of their institution while serving in this role. An ombudsperson has a set term of office. A maximum of two successive periods in office are possible. Researchers who are persons of integrity and who have management experience are eligible to be selected as ombudspersons. As neutral and qualified contact persons, they advise on issues relating to good scientific practice and in suspected cases of scientific misconduct and, where possible, contribute to solution-oriented conflict mediation. Ombudspersons maintain confidentiality in dealing with queries and, if necessary, notify the responsible body at their institution in the event of suspected cases of misconduct. This is either to the responsible PhD committee (in the case of misconduct while completing a PhD) or to the responsible habilitation committee (in the case of misconduct while completing post-doctoral studies) or to the commission investigating academic misconduct; in the case of accusations that are obviously criminal, then this should be reported only or also to the President's Office. The university provides the ombudspersons and the members of the commission investigating academic misconduct with the necessary support and acceptance for the performance of their duties. The university may initiate additional measures to help facilitate the work of an ombudsperson. The university offers a right of choice that enables members and employees to contact either any of their institution's ombudspersons or the national German Research Ombudsman (instead of a university ombudsperson).

Research Process

Guideline 7: Cross-phase quality assurance

Researchers at the University of Tübingen carry out each step of the research process *lege artis*. When research findings are made publicly available (in the narrower sense of publication, but also in a broader sense through other communication channels), the quality assurance mechanisms used are always explained. This applies especially when new methods are developed. The university is aware that continuous quality assurance during the

research process includes, in particular, compliance with subject-specific standards and established methods, processes such as equipment calibration, the collection, processing and analysis of research data, the selection and use of research software, software development and programming, and the keeping of laboratory notebooks. If researchers at the University of Tübingen have made their findings publicly available and subsequently become aware of inconsistencies or errors in them, they make the necessary corrections. If the inconsistencies or errors constitute grounds for retracting a publication, the University of Tübingen researchers will promptly request the publisher, infrastructure provider, etc., to correct or retract the publication and make a corresponding announcement. The same applies if researchers at the university are made aware of such inconsistencies or errors by third parties. The origin of the data, organisms, materials and software used in the research process is disclosed and the reuse of data is clearly indicated; original sources are cited. The nature and the scope of research data generated during the research process are described. Research data are handled in accordance with the requirements of the relevant subject area. The source code of publicly available software must be persistent, citable and documented. Depending on the particular subject area, it is an essential part of quality assurance that results or findings can be replicated or confirmed by other researchers (for example with the aid of a detailed description of materials and methods).

Guideline 8: Stakeholders, responsibilities and roles

The roles and responsibilities of the researchers and research support staff participating in a research project at the University of Tübingen must be clear at each stage of the project. For this it is necessary that the participants in a research project engage in regular dialogue. They define their roles and responsibilities in a suitable way and adapt them where necessary. Adaptations are likely to be needed if the focus of a participant's work changes.

Guideline 9: Research design

Researchers at the University of Tübingen take into account and acknowledge the current state of research when planning a project. To identify relevant and suitable research questions, they familiarize themselves with existing research in the public domain. The University of Tübingen ensures that the necessary basic framework for this is in place. Methods to avoid (unconscious) distortions in the interpretation of findings, e.g. the use of blinding in experiments, are used where possible. Researchers examine whether and to what extent gender and diversity dimensions may be of significance to the research project (with regard to methods, work program, objectives, etc.). The context in which the research was conducted is taken into consideration when interpreting findings.

Guideline 10: Legal and ethical frameworks, usage rights

Researchers at the University of Tübingen adopt a responsible approach to the constitutionally guaranteed freedom of research. They comply with rights and obligations, particularly those arising from legal requirements and contracts with third parties, and where necessary seek approvals and ethics statements and present these when required. With regard to research projects, the potential consequences of the research should be evaluated in detail and the ethical aspects should be assessed. The legal framework of a research project includes documented agreements on usage rights relating to data and results generated by the project. It is necessary that researchers at the university maintain a continual awareness of the risks associated with the misuse of research results. Their responsibility is not limited to compliance with legal requirements but also includes an obligation to use their knowledge, experience and skills such that risks can be recognized, assessed and evaluated. They pay particular attention to the aspects associated with security-relevant research (dual use). The university is responsible for ensuring that their members' and employees' actions comply with regulations and promote this through suitable organizational structures. It develops binding ethical guidance and policies and define procedures to assess ethical issues relating to research projects. Where possible and practicable, researchers at the university conclude documented agreements on usage rights at the earliest possible point in a research project. Documented agreements are especially useful when multiple academic and/or non-academic institutions are involved in a research project or when it is likely that a researcher will move to a different institution and continue using the data they generated for their own research purposes. In particular, the researcher who collected the data is entitled to use them. During a research project, those entitled to use the data decide whether third parties should have access to them (subject to data protection regulations).

Guideline 11: Methods and standards

To answer research questions, researchers at the University of Tübingen use scientifically sound and appropriate methods. When developing and applying new methods, they attach particular importance to quality assurance and the establishment of standards. The application of a method normally requires specific expertise that is ensured, where necessary, by suitable cooperative arrangements. The establishment of standards for methods, the use of software, the collection of research data and the description of research results is essential for the comparability and transferability of research outcomes.

Guideline 12: Documentation

Researchers at the University of Tübingen document all information relevant to the production of a research result as clearly as is required by and is appropriate for the relevant subject area to allow the result to be reviewed and assessed. In general, this also includes documenting individual results that do not support the research hypothesis. The selection of results must be avoided. Where subject-specific recommendations exist for review and assessment, researchers create documentation in accordance with these guidelines. If the documentation does not satisfy these requirements, the constraints and the reasons for them

are clearly explained. Documentation and research results must not be manipulated; they are to be protected as effectively as possible against manipulation.

An important basis for enabling replication is to make available the information necessary to understand the research (including the research data used or generated, the methodological, evaluation and analytical steps taken, and, if relevant, the development of the hypothesis), to ensure that citations are clear, and, as far as possible, to enable third parties to access this information. Where research software is being developed, the source code is documented.

Guideline 13: Providing public access to research results

As a rule, researchers at the University of Tübingen make all results available as part of scientific/academic discourse. In specific cases, however, there may be reasons not to make results publicly available (in the narrower sense of publication, but also in a broader sense through other communication channels); this decision must not depend on third parties. Researchers decide autonomously – with due regard for the conventions of the relevant subject area – whether, how and where to disseminate their results. If it has been decided to make results available in the public domain, researchers describe them clearly and in full. Where possible and reasonable, this includes making the research data, materials and information on which the results are based, as well as the methods and software used, available and fully explaining the work processes. Software programmed by researchers themselves is made publicly available along with the source code in due course, taking into account interests such as securing qualification work, protection of intellectual property and economic issues, e.g. within the framework of research and development work. Researchers provide full and correct information about their own preliminary work and that of others.

In the interest of transparency and to enable research to be referred to and reused by others, whenever possible researchers make the research data and principal materials on which a publication is based available in recognized archives and repositories in accordance with the FAIR principles (**F**indable, **A**ccessible, **I**nteroperable, **R**eusable). Restrictions may apply to public availability in the case of patent applications. If self-developed research software is to be made available to third parties, an appropriate license is provided. In line with the principle of 'quality over quantity', researchers avoid splitting research into inappropriately small publications. They limit the repetition of content from publications of which they were (co-)authors to that which is necessary to enable the reader to understand the context. They cite results previously made publicly available unless, in exceptional cases, this is deemed unnecessary by the general conventions of the discipline.

Guideline 14: Authorship

At the University of Tübingen an author is exclusively defined as an individual who has made a genuine, identifiable contribution to the content of a research publication of text, data or software. All authors agree on the final version of the work to be published. Unless explicitly stated otherwise, they share responsibility for the publication. Authors seek to ensure that, as far as possible, their contributions are identified by publishers or infrastructure providers such that they can be correctly cited by users.

The contribution must add to the research content of the publication. What constitutes a genuine and identifiable contribution must be evaluated on a case-by-case basis and depends on the subject area in question. An identifiable, genuine contribution is deemed to exist particularly in instances in which a researcher – in a research-relevant way – takes part in

- the development and conceptual design of the research project, or
- the gathering, collection, acquisition or provision of data, software or sources, or
- the analysis/evaluation or interpretation of data, sources and conclusions drawn from them, or
- the drafting of the manuscript.

If a contribution is not sufficient to justify authorship, the individual's support may be properly acknowledged in footnotes, a foreword or an acknowledgment. Honorary authorship where no such contribution was made is not permissible. A leadership or supervisory function does not itself constitute co-authorship. Collaborating researchers agree on authorship of a publication. The decision as to the order in which authors are named is made in good time, normally no later than when the manuscript is drafted, and in accordance with clear criteria that reflect the practices within the relevant subject areas. Researchers may not refuse to give their consent to publication of the results without sufficient grounds. Refusal of consent must be justified with verifiable criticism of data, methods or results.

Guideline 15: Publication medium

Authors at the University of Tübingen select the publication medium carefully, with due regard for its quality and visibility in the relevant field of discourse. Researchers who assume the role of editor carefully select where they will carry out this activity. The scientific/academic quality of a contribution does not depend on the medium in which it is published.

In addition to publication in books and journals, authors may also consider academic repositories, data and software repositories, and blogs. A new or unknown publication medium is evaluated to assess its seriousness. A key criterion to selecting a publication medium is whether it has established guidelines on good scientific practice.

Guideline 16: Confidentiality and neutrality of review processes and discussions

Fair behavior is the basis for the legitimacy of any judgment-forming process. Researchers at the university who evaluate submitted manuscripts, funding proposals or personal qualifications are obliged to maintain strict confidentiality with regard to this process. They disclose all facts that could give rise to the appearance of a conflict of interest. The duty of confidentiality and disclosure of facts that could give rise to the appearance of a conflict of interest also applies to members of research advisory and decision-making bodies.

The confidentiality of third-party material to which a reviewer or committee member gains access precludes sharing the material with third parties or making personal use of it. Researchers immediately disclose to the responsible body any potential or apparent conflicts of interest, bias or favoritism relating to the research project being reviewed or the person or matter being discussed.

Guideline 17: Archiving

Researchers at the University of Tübingen back up research data and results made publicly available, as well as the central materials on which they are based and the research software used, by adequate means according to the standards of the relevant subject area, and retain them for an appropriate period of time. Where justifiable reasons exist for not archiving particular data, researchers explain these reasons. The university ensures that the infrastructure necessary to enable archiving is in place.

When scientific and academic findings are made publicly available, the research data (generally raw data) on which they are based are generally archived in an accessible and identifiable manner for a period of ten years at the institution where the data were produced or in cross-location repositories. This practice may differ depending on the subject area. In justified cases, shorter archiving periods may be appropriate; the reasons for this are described clearly and comprehensibly. The archiving period begins on the date when the results are made publicly available.

Non-Compliance with Good scientific practice, Procedures

Guideline 18: Complainants and respondents

The responsible bodies at the University of Tübingen (normally ombudspersons and the commission investigating academic misconduct) examining allegations of misconduct take appropriate measures to protect both the complainant and the respondent. The investigation of allegations of research misconduct must be carried out in strict confidentiality and adhere to the presumption of innocence. The information disclosed by the complainant must be provided in good faith. Knowingly false or malicious allegations may themselves constitute misconduct. The disclosure should not disadvantage the research or professional career prospects of either the complainant or the respondent.

Particularly in the case of early career researchers, the disclosure should not lead to delays in the complainant's own qualification phase and no disadvantage should arise to the writing of final dissertations or doctoral theses; the same applies to working conditions and possible contract extensions. The bodies responsible for processing the disclosure must act accordingly. The investigating body will respect the presumption of innocence vis-à-vis the respondent at each stage of the process when considering each case. The respondent should not experience any disadvantage resulting from the investigation of the allegation until such time as research misconduct has been formally established. The complainant must have objective reasons for suspecting that an infringement of the standards of good scientific practice may have occurred. If the complainant is unable to verify the facts personally, or if there is uncertainty with regard to the interpretation of the guidelines on good scientific practice in relation to an observed set of circumstances, the complainant should consult a local ombudsperson or the German Research Ombudsman to clarify the suspicion. Disclosures made anonymously can only be investigated if the complainant provides the party investigating the allegation with solid and sufficiently concrete facts; the accusation will be taken sufficiently seriously. If the complainant's identity is known, the investigating body will keep the individual's name confidential and will not share it with third parties without the individual's consent. Different requirements apply only if there is a legal obligation or if the respondent cannot otherwise properly defend themselves because, as an exception, the case concerns the identity of the complainant. The investigating body will promptly inform the complainant if their name is to be disclosed; the complainant can decide whether to withdraw the allegation due to the impending disclosure. Whether the proceedings are to be discontinued shall be decided taking all circumstances into account; withdrawal of the allegation is an important but not sole aspect in this. The confidentiality of the process is limited if the complainant makes their suspicion public. The investigating body will decide on a case-by-case basis how to handle the breach of confidentiality on the part of the complainant. Should research misconduct not be proven, the complainant must continue to be protected, assuming that the allegations cannot be shown to have been made against their better knowledge.

Guideline 19: Procedures in cases of alleged research misconduct

The University of Tübingen has established regulations for handling allegations of research misconduct with its rules of procedure. These regulations define the circumstances that constitute misconduct, procedural rules and the measures to take should an allegation be upheld. The regulations are applied in addition to relevant higher-level laws.

Those responsible for processing the disclosure understand that not every breach of good scientific practice constitutes misconduct. Only deliberate or grossly negligent infringements defined in the university's set of regulations are considered scientific misconduct. Particular examples of misconduct include fabrication of data, falsification of data and plagiarism. The rules of procedure of the university therefore define responsibility for each step of a procedure, the consideration of evidence, substitutes for ombudspersons and members of investigation committees, conflicts of interest and the procedural principles of the rule of law. The respondent and the complainant are each given the opportunity to be heard at each stage of the process. Until such time as it is demonstrated that misconduct has occurred, information relating to the individuals involved in the process and the findings of the investigation is treated in confidence. The university ensures that the entire process is conducted as promptly as possible and implements the steps necessary to complete each stage of the procedure within an appropriate time frame. The rules of procedure stipulate various measures to be applied according to the seriousness of the scientific misconduct ascertained. If, after it has been established that misconduct has occurred, the revocation of an academic degree is being considered, the responsible bodies (PhD or habilitation committee) are included in deliberations. Once inquiries are complete, and in accordance with data protection and with due consideration of the interests of the protection of privacy, the result is announced to affected research organizations and, if relevant, third parties with a justified interest in the decision.

The confidentiality of the process will be ensured at least until there is evidence of scientific misconduct with regard to those involved and the findings are safeguarded.

Section 2 Special nature of the announcement

In future, all new academic employees will be given a copy of these statutes and the rules of procedure of the University of Tübingen for handling allegations of research misconduct (Senate resolution of November 21, 2013) as amended, for their attention. The recipient shall sign in confirmation of receipt.

As doctoral students are not necessarily in an employment relationship, the responsible bodies in the faculties shall proceed similarly, insofar as an individual is taken on as a PhD student, in the event that they are not employed.

Section 3 Effective date

These regulations come into effect on the day after publication in the Official Announcements.

Tübingen, February 26, 2021

Professor Dr. Bernd Engler
President

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