

Good Scientific Practice- Frequently asked questions (FAQs)

Office of the Ombudsperson, University Library, ProLehre May 2020 (Engl. translation by TUM-GS)

1) What is good scientific practice?

1.1 Good scientific practice: What does that mean?

In 2015, the TUM adopted guidelines for safeguarding good scientific practices (https://www.chancengleichheit.tum.de/fileadmin/w00blt/www/Ombudsbuero/TUM_Richtlinien_zur_Sicherung_guter_wissenschaftlicher_Praxis_de-eng_2015.pdf) in line with the corresponding DFG memorandum from 2013. The principles of good scientific practice require every academic to work “lege artis.” In other words, according to the rules of the art. Specifically, this includes:

- documenting findings
- critically questioning all findings
- strict honesty regarding contributions from partners
- acknowledgment of competitors and predecessors
- avoiding and preventing academic misconduct

1.2 What are the different categories of scientific misconduct?

The code of good scientific practice is in violation when someone practices gross negligence (whether intentional or unintentional) in any of the following ways:

- invents or falsifies data or sources, or participates in their falsification
- violates intellectual property rights (e.g. through plagiarism or theft of ideas)
- disrupts, compromises or negatively impacted another person’s research activities
- falsely accuses third parties of academic misconduct
- is aware of falsifications and does not take any counter-measures
- contributes as an author to publications accused of falsification
- grossly neglects his/her supervisory obligations.

1.3 What should I do if I notice scientific misconduct?

Contact the office of the ombudsperson (<https://www.tum.de/die-tum/die-universitaet/compliance/>) for Good Scientific Practice at TUM. Any information that is conveyed to the ombudsperson will be held confidential. The ombudspersons receive complaints, examine the facts of the case, try to find an amicable solution in cases of conflict (when possible), and, if necessary, initiate a formal ombudsman procedure if a breach of the rules cannot be corrected.

2) Proper handling of data

2.1 Which guidelines must be observed?

In addition to possible specifications from third-party funding bodies, the TUM guidelines on the handling of research data (2018) (<https://www.it.tum.de/en/projects/research-data-management/>) must be observed. Practical information on the handling of research data can be found at the TUM Research Service Center (<https://www.ub.tum.de/en/research-data-management>).

2.2 How long do I need to save primary data?

Primary data and (if possible) samples that form the basis for publications must be saved for ten years. The storage must take place in the institution where the data originated in accordance with the Guidelines for Safeguarding Good Scientific Practice (2015) (https://www.chancengleichheit.tum.de/fileadmin/w00blt/www/Ombudsbuero/TUM_Richtlinien_zur_Sicherung_guter_wissenschaftlicher_Praxis_de-eng_2015.pdf).

2.3 Where can I save primary data?

You can use the TUM media server (mediaTUM) (<https://mediatum.ub.tum.de/>) to save primary data. mediaTUM offers long-term archiving, flexible metadata schemata, and a rights management system that lets you release your data within the department, campus-wide, or on the internet. Data is stored on the servers in the Leibniz Supercomputing Center.

2.4 What do I need to pay attention to when collecting data?

Data collection must be traceable. Specifically, that includes, for example,

- keeping a lab book or a project journal,
- documenting the data storage.

3) Publication

3.1 Who can or should I name as the author of an academic publication?

You must name any author who:

- contributed to the content of the publication in a fundamental way (i.e. to the formation of the question, the research plan, the execution of the research, the evaluation or interpretation of the results) and
- contributed to the design or critical content revision of the manuscript

Technical assistance, financial support or general management of the department or institution where the research was performed do not constitute authorship. All authors must agree to the publication and share responsibility for the entire publication.

3.2 Correct citation style, avoiding plagiarism

Source references acknowledge the work of other authors, point out previous work, and document facts. Source references are an essential part of providing seamless documentation for academic arguments as they clearly show where a publication is making its own academic contribution beyond the cited materials.

Anything used word for word or based on the content of outside sources must be cited. Material taken from unpublished ideas and previous work must also be credited to the respective author. The use of another person's academic findings without citing the source is punishable.

You can find a summary and more information about citations in the TUM Citation Guide (<https://mediatum.ub.tum.de/1290447?after=1304024>).

3.3 What questions are answered in the University Library Citation Guide?

- What needs to be cited
- What does not need to be cited
- How to cite (directly, indirectly)
- How to cite different document types (including images, standards, and student papers)
- What plagiarism is and how to avoid it
- What particularly needs to be noted for academic publications
- How to handle retracted work
- How to control the use of your own work with a Creative Commons License
- How literature administration programs can help with citations
- In which literature administration programs TU Munich holds a campus license

- What training courses, e-learning materials and consulting offerings are available at TU Munich for citations and literature administration programs
- Which citation styles are recommended: author-year style (APA), numbering style (IEEE Editorial), footnote style [Chicago].

The TUM citation guide can be found here: <https://mediatum.ub.tum.de/1290447?after=1304024>.

3.4 How do I cite student papers?

If you want to use content from student papers in your academic publication, you must cite them.

- A published student research paper or examination paper may be cited (for options for publication, see the citation guide of the University Library: <https://mediatum.ub.tum.de/1225458>). The TUM recommends to publish theses if significant scientific results have been achieved. The University Library offers the possibility to publish theses on mediaTUM: <https://www.ub.tum.de/en/publishing-bachelor-master-thesis>.
- When citing unpublished seminar papers, you must document in your project that you have obtained permission from the author and the advisor.

3.5 What else should I know about academic publications?

- All content that comes from other work must be properly cited.
- Information must not be suppressed, even if it questions the hypothesis of the author.
- The verifiability of research results (documentation, description of methods, long-term archiving of primary data) must be ensured.
- It is not permissible to publish research findings in more than one place or to split them up in order to increase the number of publications.
- Information may not be suppressed even if it calls the author's hypothesis into question.
- Content taken from other works must be indicated with a citation.
- If possible, one should publish in peer reviewed journals. You can use bibliometric indicators to decide which journal is suitable for your planned publication. The University Library offers training and advice on bibliometric and visibility of research online at <https://www.ub.tum.de/kurs/sichtbarkeit-und-impact-von-forschung>, <https://www.ub.tum.de/en/consultation-bibliometrics-impact>, <https://www.ub.tum.de/en/bibliometrics>. You can find the training program, additional information and registration forms on the TUM Library Website.
- The TUM Language Center offers support for writing publications in English ("English Coaching" and "Interactive Editing", <https://www.sprachenzentrum.tum.de/en/languages/english/>).

The TUM has adopted a binding publication guideline (<https://mediatum.ub.tum.de/publikationsrichtlinie>) which serves the members of TUM in classifying scientific and non-scientific literature. This is intended to ensure that publications, patents and other written documents are correctly and completely recorded for the benefit of the authors and their institution(s).

3.6 Does TUM support open access (OA)?

TUM approved an open access policy in January of 2014 and is committed to the goal of ensuring open access to academic literature on the internet.

- All TUM scholars are encouraged to publish their academic papers in accepted open access journals.
- Copies of any papers previously published in fee-based publications must be made available to the public on the TUM media server as long as there are no legal restrictions preventing them from doing so.
- Publication fees associated with open access publications may be covered by TUM in certain circumstances. The request form and additional information can be found on the University Library's open access pages at <https://www.ub.tum.de/en/open-access>.

3.7 Do I need to register my publications in a university bibliography at TUM?

All publications by TUM scholars, as per a decision by the University Board of Management, must be registered in TUM's electronic university bibliography on the mediaTUM media server. Additional information can be found on the University Library pages.

3.8 Whom can I contact if there are patent-law questions about publications or research partnerships?

TUM offers patent and inventor consultation. If you plan to register an industrial property right for an idea, a project in the development phase, or a finished product, they can advise you accordingly. The Inventor Guidelines on the TUM intranet (only in German) and the TUM ForTe – TUM Office for Research and Innovation (<https://www.forte.tum.de/en/tum-forte-home/>) pages contain additional information. Contact partners are listed on the TUM Patent and Licensing Office page at <https://www.forte.tum.de/en/technology-transfer/patents-and-licenses/>.

3.9 Who can advise me if I want to set up an industry partnership or apply for third-party funding?

TUM ForTe – Office for Research and Innovation – offers support for questions about research funding and technology transfer. If you are preparing research or business partnerships or third-party funding projects, they can advise you accordingly.

3.10 What do I need to pay attention to when applying standards?

The University Library at TUM is a repository for DIN standards. TUM employees have full access to the electronic version of all DIN standards from their workstations; other people can review the standards in the University Library.

- Terms and conditions for using standards in your research and teaching can be found on the University Library website at <https://www.ub.tum.de/en/standards>.
- Standards may be cited in academic work (formal requirements for correct source citations can be found in the TUM University Library Citation Guide: <https://mediatum.ub.tum.de/1290447?after=1304024>).
- Academic publications that cite standards are legally permissible as long as they take place as part of a testing process (for instance when publishing a dissertation as part of a doctoral program).
- Publications that cite standards and are not part of a testing process (e.g. textbooks, trade journals or commercial publications) may need to obtain permission from Beuth Verlag (more information can be found in the University Library Citation Guide).

3.11 What possibilities do I have for literature research?

- On the web pages of the University Library, TUM students and scientists have access to a variety of databases (<https://www.ub.tum.de/en/databases>).
- The interdisciplinary databases Web of Science and Scopus as well as a number of subject-specific databases are accessible there.
- Databases usually offer differentiated search options (keywords, combination of searches and alerting services).
- Using the TUM identifier, it is possible to access the databases (<https://eaccess.ub.tum.de/login>) from your own workstation.
- The University Library offers trainings, e-learning materials and research office hours for how to search tools and strategies (<https://www.ub.tum.de/en/courses>).

4) Employment and supervision of young academics

4.1 I employ academic staff and student assistants. What do I need to know about the selection process, contract design and support?

When selecting, hiring and supporting employees, you should follow the guidelines in the TUM Diversity Code of Conduct (<https://www.chancengleichheit.tum.de/en/inclusion/tum-diversity-code-of-conduct/>). In the code of conduct, TUM agrees to promote and support diversity and variety at TUM. TUM works actively to promote a good balance of family and career and to ensure handicap accessibility and equal opportunities.

The TUM has laid down principles for the supervision of young scientists in its guidelines for ensuring good scientific practice (2015) (https://www.chancengleichheit.tum.de/fileadmin/w00blt/www/Ombudsbuero/TUM_Richtlinien_zur_Sicherung_guter_wissenschaftlicher_Praxis_de-eng_2015.pdf). According to these guidelines, students and young researchers are entitled to regular scientific advice and support from supervisors or leaders of research areas and working groups. The head of a working group is responsible for ensuring that students, doctoral candidates or graduates receive appropriate supervision. Supervisors should not accept more doctoral candidates than they are able to adequately supervise.

The TUM has established rules on fair play in the workplace (in German only, <https://www.personalvertretungen.tum.de/fileadmin/w00bzq/prw/dienstvereinbarungen/dv-tum-fairplay-brosch.pdf>) and explicitly distances itself from discrimination, sexual harassment, stalking and mobbing and gives recommendations on how to act in case of such incidents.

In the event of concrete concerns, the Occupational Psychology Service at TUM (<https://portal.mytum.de/TUMgesund/2-Ordner/25/>) is available to provide advice and support. Undergraduates can contact the Advisory Network for the Munich Student Union (<https://www.studentenwerk-muenchen.de/en/advisory-network/>), which combines many different advising services.

4.2 I want to help my students plan their thesis projects effectively, use correct citations, and avoid plagiarism. Are there any courses at TUM that I can recommend?

With the TUM Teaching Constitution (<https://www.lehren.tum.de/en/topics/tum-teaching-constitution/>) the university's self-concept as a place of learning and teaching is described.

The undergraduate students you are supervising require regular advice and support from you. In addition, there are also several institutions at TUM that offer training and support for undergraduates and doctoral candidates:

- ProLehre offers courses on Learning to Learn, Mastering Exam Papers, Effective Reading and much more at <https://www.prolehre.tum.de/lernkompetenz/lernkompetenz-workshops/>, <https://www.prolehre.tum.de/en/studyskills/>.
- The University Library offers a modular training program for information skills. The University Library offers training as in-person classes, web seminars and e-learning courses at <https://www.ub.tum.de/kurse>.
- TUM has two licensed literature administration programs: Citavi and EndNote. TUM employees and students can use both of these programs free of charge (<https://www.ub.tum.de/en/reference-management>). The university library offers basic and advanced courses for both programs. If you have any questions about these or other literature administration programs, you can set up an appointment during the literature administration office hours (also available as online consulting or using conferencing software).
- The Leibniz Computer Center (LRZ) offers many courses for students and employees on IT topics, including Microsoft Office at <https://www.lrz.de/services/schulung/kursanmeldung>.

4.3 I teach courses and I am looking for pedagogical support. What services do TUM offer in this area?

With its central service facility ProLehre | Media and Didactics, the TUM offers all teachers a versatile continuing education program for university didactics (<https://www.prolehre.tum.de/en/programs-services/courses-certification/>) as well as individual counseling and support services for teaching, learning and testing.