



Introduction to scientific conduct

Guidelines and recommendations for students

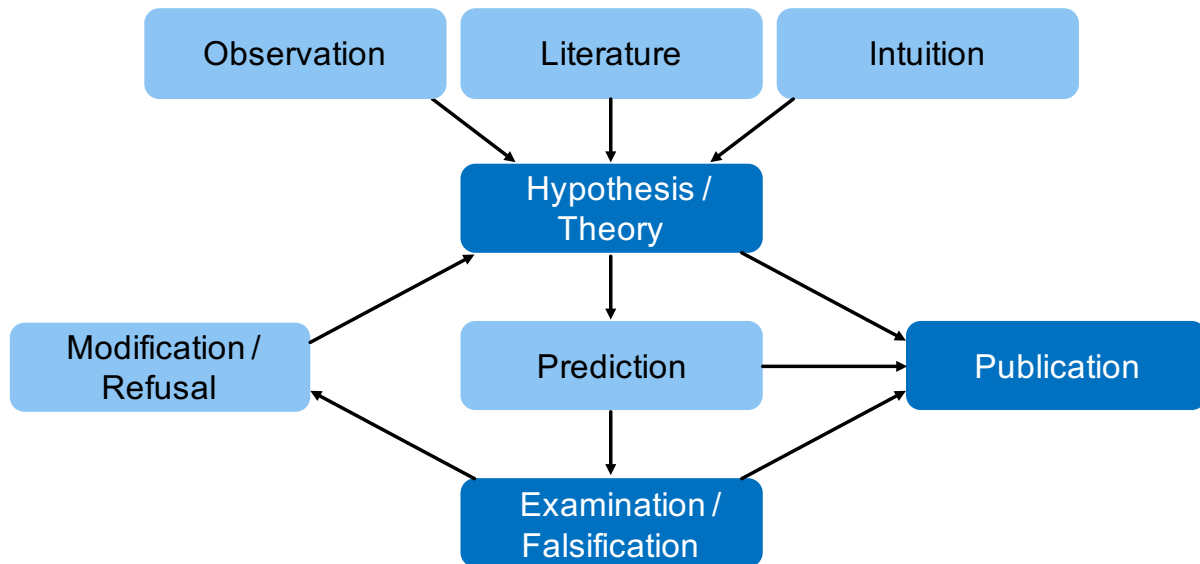
Scientific work

The aim of scientific work is to create secured knowledge through a methodical and structured procedure.

Secured knowledge consists of

- founded,
- connected,
- communicable,
- objectively valuable,
- verifiable statements.

Central elements of scientific work



Scientific Integrity

Experiments, analyses and results must be objectively reproducible:

- complete recording of all essential steps, factors, assumptions and resources
- permanent and safe storage of all primary data (raw data)
- objective analysis (critical and open-minded)
- complete and comprehensible communication

Scientific work almost always builds upon works of others and own prior work. In communications (publications, theses, presentations,) thus:

- new own contributions,
- all used and cited own prior works and
- all used works of others (ideas, hypotheses, facts and algorithms,...)

have to be clearly visible as such.

Handling intellectual property

Objective, complete documentation as well as proper and responsible handling of intellectual property are inevitable requirements for

- scientific progress,
- confidence within science (publications as proof for secured knowledge),
- confidence from society and economy in science (financing, knowledge transfer).

Students and scientific integrity

As prospective engineers and scientists it is essential for students to know and observe the guidelines of scientific integrity already at an early stage, especially the proper handling of intellectual property in scientific works (incl. Bachelor-, Master-, Doctoral Thesis, exercise reports, semester works etc.).

Each graduate program at ETH Zurich needs to familiarize students with the rules and significance of scientific integrity.

The students (as well as employees) of ETH are bound to follow the guidelines of scientific integrity.

Citations

Every intellectual creation (idea, hypothesis, theory, figure, ...) of another person and every own former intellectual creation must be identified by a citation if it forms a basis of the present work or if it is used in it, no matter if it is reproduced literally, paraphrased, translated or only used correspondingly.

Only “textbook knowledge” is exempt from this rule, this means knowledge which is generally known, accepted and given within the respective discipline/area and which can typically be found in current textbooks from the respective discipline.¹⁾

Different guidelines of citation have been established in different areas of expertise; the supervisors of the work will inform the students about the respectively prevailing rules.

¹⁾ If the *illustration* of such textbook knowledge is adopted (formulation, figure, ...) the source has to be specified anyway.

Plagiarism

“Plagiarism is understood as the complete or partial imitation of the work of another author without citing that work’s source and author.”¹⁾

Plagiarism is a violation of copyright.

“Short passages from another work may be quoted. The quote must, however, be identified and its source cited.”¹⁾

ETH Zürich, Information sheet “Citation etiquette”, <https://www.ethz.ch/content/dam/ethz/main/education/rechtliches-abschluesse/leistungskontrollen/plagiar>

Plagiarism (examples)

- Adoption of text components or ideas from an other work (incl. internet), without specifying explicitly the source
- Paraphrasing of text components from other work (incl. internet), this means adoption of text components with slight changes, without specifying explicitly the source
- Translation of foreign-language text components, without specifying explicitly the source (translation plagiarism)
- Submission of a work under one's own name which was in reality written by another person («Ghostwriter») on behalf of oneself or on behalf of another person

Plagiarism (further examples)

- Submission of a work created from another person under one's own name (full plagiarism)
- Adoption of text components or ideas from another work (with or without paraphrasing/translation), whereby the source is cited, but not in the context of the used components or ideas (e.g., reference to sources included at another point on one's own product, or reference to other information, e.g. textbook knowledge, also included in the source)
- Submission of the same work (or of parts of it) for different events (different exercises, labs, final works, seminar works, ...) (self plagiarism)

Student work

Often the aim (or the result) of student work during study is not to create new scientific awareness, but to apply scientific methods to a concrete problem respectively to a concrete question.

Intellectual property is created in this case by problem related choice, combination or application of methods as well as illustration, interpretation and critical discussion of the results.

The guidelines of scientific integrity and especially the commitment to avoid plagiarism are valid also for these works.

Declaration of Originality

- Compulsory component of each final work at ETH Zurich, especially of each semester, Bachelor- and Master's thesis
- Lecturers may ask for it for other works as well
- Work is not accepted without declaration of originality
- Scan of scanned form¹⁾ is part of the electronic version of thesis

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Declaration of originality

The signed declaration of originality is a component of every semester paper, Bachelor's thesis, Master's thesis and any other degree paper undertaken during the course of studies, including the respective electronic version.
Lecturers may also require a declaration of originality for other written papers compiled for their courses.

I hereby confirm that I am the sole author of the written work here enclosed and that I have compiled it in my own words. Fairly essential are corrections of form and content by the supervisor.

Title of work (in block letters):

Authored by (in block letters):
For joint author or groups the names of all authors are required.

Name(s):	First name(s):
_____	_____
_____	_____
_____	_____

With my signature I confirm that

- I have committed none of the forms of plagiarism described in the "Citizen integrity" information sheet
- I have documented all methods, data and processes truthfully
- I have not manipulated any data
- I have mentioned all persons who were significant facilitators of the work.

I am aware that the work may be screened electronically for plagiarism.

Place, date: _____ Signature(s): _____

For papers written by groups the names of all authors are required. Their signatures collectively guarantee the write content of the written paper.

¹⁾ <https://www.ethz.ch/content/dam/ethz/main/education/rechtliches-abschluesse/leistungskontrollen/declaration-originality.pdf>

Recognition of plagiarism

- Plagiarism is often observable when certain components of the respective work are different from others (change of style) or when language and argumentation do not correspond to the level of the student.
- A special software is available for lecturers at ETH to check submitted works against a database of works for detecting plagiarism.

Consequences of plagiarism

- Plagiarism is a disciplinary violation and leads to a disciplinary procedure.
- The disciplinary order of ETH Zurich regulates the approach and measures in case of disciplinary violations, amongst others when someone¹⁾
 - acts dishonestly during examinations or any other type of performance assessment, in particular when trying to obtain or provide an advantage for himself/herself or for another person in a forbidden way
 - submits a written work under his/her name, which he or she has not written himself/herself or which contains work from somebody else without explicit and appropriate indication (plagiarism)
- Measures are taken in dependence of the type and gravity of the violation as well as their effects. Possible measures are amongst others:
 - Pronunciation of a reprehension because of misbehavior
 - Failing of performance assessment (examination block, exams, others)
 - Exclusion from ETH
 - Deprivation of illegally acquired academic grade

1) Disciplinary order of ETH Zurich, 2 November 2004

Concluding remarks

- Science is based on objectivity, traceability, transparency and confidence.
- Plagiarism is a copyright violation and offense against scientific integrity. It damages science and the plagiarizing person.
- The rules of scientific integrity are valid also for students.

You are studying to develop yourself professionally and personally. Use publications and templates, cooperate, let yourself inspire, but avoid all kind of plagiarisms – in the long term you in particular harm yourself, when you fail to handle intellectual property properly and carefully.

More information and references

- Guidelines for Research Integrity. ETH Zurich, 2. edition, 2011, https://www.ethz.ch/content/dam/ethz/special-interest/itet/department/Studies/ETH_Research_Integrity_2011.pdf
- Citation Etiquette – How to handle the intellectual property of others. ETH Zürich, <https://www.ethz.ch/content/dam/ethz/main/education/rechtliches-abschluesse/leistungskontrollen/plagiarism-citationetiquette.pdf>
- Disciplinary order of ETH Zurich, 2 November (in German), <http://www.admin.ch/opc/de/classified-compilation/20042642/index.html>
- Directive scientific conduct and declaration of originality, Rektor, ETH Zürich, 1.3.2014 (in German), <https://www.ethz.ch/content/dam/ethz/common/docs/weisungssammlung/files-de/wiss-arbeiten-eigenst%C3%A4ndigkeitserklaerung.pdf>