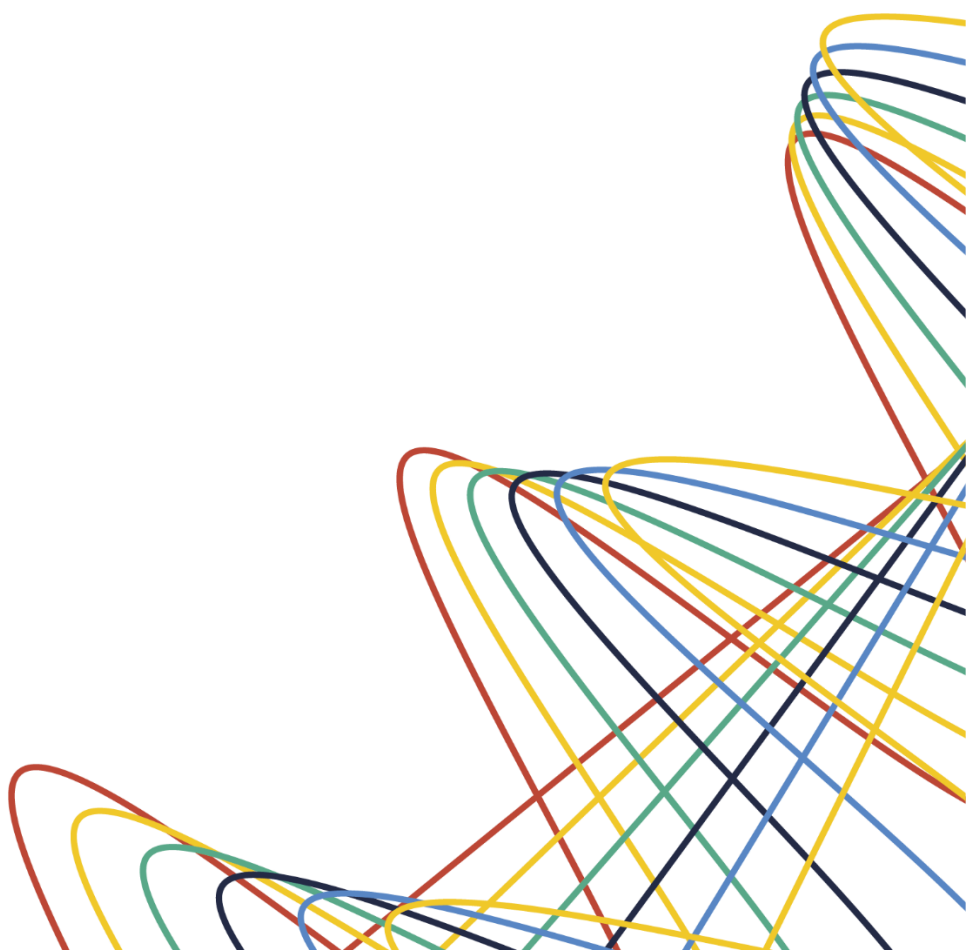


Code of academic ethics



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- Public
- Available to Constructor Institute members only (on Intranet)
- Restricted availability, subject to approval

Related documents: Quality Management Handbook, CI-2023-017-QMH, 2023; Equality Guidelines, CI-2023-009-EGU, 2023.

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2023-08-08	Bertrand Meyer	<ul style="list-style-type: none"> • Style and consistency. • Approved by President 31.07.2023 • Approved by Academic Senate 09.08.2023.
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1. Purpose

The aim of research at Constructor Institute Schaffhausen is to contribute to the advancement of humankind by expanding and sharing knowledge. Achieving this goal requires a systematic application of scientific principles and thorough enforcement of the highest intellectual and ethical standards.

2. Existing documents

The following documents have achieved wide acceptance, and are incorporated by reference into the present document with the provision that in the case of any perceived contradiction the clauses of the present document shall prevail:

- The European Code of Conduct for Research Integrity [2]¹.
- Specifically for research in computing, the ACM Code of Ethics and Professional Conduct [1].

3. Core values

The core values of research ethics at Constructor Institute Schaffhausen are:

- **Truthfulness:** always report results as observed or deduced through the rules of logic; never misrepresent or distort observations.
- **Fairness:** recognize all participants' role in the results obtained, in proportion to their actual contributions, regardless of rank and other personal attributes.
- **Respect:** treat all research participants and others affecting or affected by the research with due consideration. Identify, reveal, and remedy any potential negative consequences of research on any group of people.
- **Academic freedom:** do not impose any irrelevant obligations or constraints on the research chairs' choice of research topics and conduct of research.
- **Review:** systematically apply a critical mindset, accept and welcome criticism of ideas and results regardless of their provenance. Whenever mistakes or deficiencies are uncovered, admit and correct them openly and without delay.
- **Practicality:** in all research, keep in mind applications to industrial practice (including other entities of the Constructor group), education, and other activities benefiting humankind.
- **Education:** make all members of Constructor Institute Schaffhausen, particularly researcher and students, aware of the rules of ethical behavior and of the present Code; make it part of the mission of every member of Constructor Institute Schaffhausen to make more junior or novice members aware of the rules and to mentor them on their application.
- **Trust:** expect that Constructor Institute Schaffhausen members, properly educated, will apply the rules, and do not establish a climate of systematic suspicion, which would hinder the fruitful conduct of research.

¹ Numbers in square brackets refer to the References section on page 8.

- **Enforcement:** monitor the application of the rules, encourage reporting of suspected violations, and intervene quickly, without fear or favor, in case of such violations.

4. Conduct of research

Research shall be conducted, and its results written up following the widely recognized principles of the scientific method. The following points are particularly worth noting:

- Any result presented as a fact shall be backed up by appropriate evidence.
- While hypotheses and conjectures are normal and useful, they shall always be presented as such, as distinct from facts.
- Conclusions shall be backed up by facts and logical reasoning.
- Any discrepancies, outliers, and results possibly impairing conclusions shall be documented along with results backing conclusions.
- All research shall be accompanied by a careful review and acknowledgement of existing results.
- Experiments shall be designed, whenever possible, for later reproduction by the same and other researchers.
- All data used in studies and experiments shall be collected through systematic and rigorous techniques, protected against any tampering, and used as it is, without any adaptation intended to support desired conclusions. Whenever possible, data shall be preserved for purposes of later checking and reproduction of experiments, through appropriate research data management systems.
- Researchers shall keep track of the research process and document it, for example by keeping logs of studies and experiments.
- Researchers shall maintain a critical mindset against their own hypotheses, results and conclusions, guard against possible bias or wishful thinking, and solicit critical examinations from colleagues.

Experienced researchers are responsible for teaching more junior researchers about these and other rules of proper scientific research, including the rest of this Code of Ethics, and reminding them of them regularly.

5. Publications

All publications describing research shall faithfully reflect the actual results obtained, including any limitations, deficiencies, and doubts.

All publications shall cite sources consulted and acknowledge previous work that helped obtain the results.

Constructor Institute Schaffhausen shall maintain a searchable repository of all its publications (including Master and PhD theses as well as external publications). The repository shall contain the identification of all these publications and, whenever possible (in conformance to any confidentiality requests from partner companies, copyright restrictions of publishers, and any other in-the-property limitations) their actual texts or link to the text.

Plagiarism (including improper self-plagiarism) would defeat the Core Values of section 3 and is strictly prohibited. Specifically:

- Any significant element of text reused from a previous publication by other authors shall be explicitly marked as such (typically using quotes), with the source given.
- If a publication includes any significant elements from earlier ones by some or all of the same authors, the publication shall explicitly mention this reuse. This provision applies in particular to the case of a journal paper expanding on an earlier conference paper (or conversely). It also applies to translations of a publication into a different language.

Constructor Institute Schaffhausen authors shall in addition abide by any supplemental plagiarism or self-plagiarism prevention rules, as well as any other rules (such as rules on conflicts of interest) defined by the venue of publication.

In case of suspected plagiarism, Constructor Institute Schaffhausen may investigate the matter, using plagiarism-detection software if necessary, and take appropriate action.

The practice of *double submission* (submitting a text to a second publication venue before a rejection has been received from another to which it was first submitted) is strictly prohibited (unless declared explicitly to and approved by the editors of both venues). This prohibition only affects submissions to scientific publications and does not affect the following (if acceptable to the scientific publication venue): simultaneous application for patents; publishing informal articles for non-scientific publications such as trade magazines and popular (non-refereed) science publications; submission to non-refereed science archives of record such as arXiv; and use of an article's material for a book.

6. Authorship

The authors listed in a publication or patent shall include, and be limited to, all the individuals having made a major contribution to both the research and the writing.

In the absence of such a contribution, the following shall *not* be reasons for inclusion in the author list: management role (e.g. being the head of a unit in which the research was conducted); needing help in one's career advancement ("courtesy authorship" is strictly prohibited); having provided financing or any help other than actual participation in the research.

The present Code does not specify the precise rules for *order* of authors as they vary with scientific disciplines and local traditions. Any such rules are the responsibility of the scientific leader of the relevant unit (Chair, laboratory etc.), but they shall be made explicit by that scientific leader, communicated to unit members and applied consistently to all the publications of the unit.

All authors of an article shall give their approval before submission and publication of an article, and shall be responsible for its content, including any errors.

7. AI support for research and publication

At the time of producing this Code of Academic Ethics, automated assistants based on Artificial Intelligence (AI) techniques using Large Language Models are a promising and intriguing new technology, whose implications on the research and writing process are yet to be fully comprehended.

As this understanding develops, research units and Constructor Institute Schaffhausen as a whole may define specific rules. The following general principle is, however, immediately applicable and is expected to persist: any use of AI tools to substitute for human activities in the conduct, review, assessment, revision, and writing-up of research shall be explicitly acknowledged and documented in the corresponding publications.

8. Academic freedom and critical mindset

In research discussions, ideas shall be judged solely on their merits, not on rank or seniority. No one shall be penalized for expressing dissenting scientific views.

Decisions in case of scientific disagreements shall, whenever possible, be resolved by consensus following discussion, and if this process fails, shall be the responsibility of the unit's scientific leader, on objective grounds and after careful consideration of all views.

Every researcher shall have the right to criticize decisions and pinpoint potential errors. Any confirmed error in published material shall give rise to a corrigendum broadcast through the appropriate channels.

9. Non-scientific venues and social networks

All researchers and other members of Constructor Institute Schaffhausen shall be careful in publishing comments and results about Constructor Institute Schaffhausen research in non-refereed venues and on social networks. Any comments on elements of research and research results not yet published in refereed venues shall be subject to the agreement of the unit leader.

Any statement that commits or may appear to commit Constructor Institute Schaffhausen and its image shall be subject to approval by Constructor Institute Schaffhausen management (through the Provost or President).

In line with academic freedom, members of Constructor Institute Schaffhausen are free to express their personal views, but (unless such expression have been cleared with management) shall state clearly that they are their own and not those of Constructor Institute Schaffhausen. They shall exercise particular care in the case of potentially controversial matters.

10. Interaction between research and education

All Constructor Institute Schaffhausen researchers shall endeavor to make relevant results of their research benefit Constructor Institute Schaffhausen's educational offerings. Whenever applicable, Constructor Institute Schaffhausen students shall be encouraged to participate in research and supported in their research endeavors.

In some cases, it may be useful to take advantage of Constructor Institute Schaffhausen courses to benefit research, in particular educational research. An example is an experiment meant to test the effectiveness of a new programming technique by asking some students to try it out and compare their results with those of a control group. Any such reliance on students for research shall abide strictly by the following rules:

- It shall not distort the fundamental purpose of a course, which is always to educate the students. Any other goal, such as advancing a professor's research, must be treated as secondary.
- It shall in no way damage the educational experience.
- If any of the methods or tools under evaluation has been designed or is favored by the researchers, they shall design the experiments to favor the reverse hypothesis whenever possible (to correct for possible unconscious bias).
- In particular, it shall never favor the educational outcome of one group of students over another. For example, in testing the effectiveness of method A over method B, it is not acceptable to divide the students into a group X using A and a group Y using B, since (if A is indeed better than B) group X students will benefit over group B (or the other way around if B turns out to be better than A). The experiment shall always be designed to avoid this risk or make it negligible, for example by teaching both groups both methods in a different order.

For a guideline on such experiments, see reference [3].

11. Community service and refereeing

Researchers at Constructor Institute Schaffhausen are encouraged to participate in all aspects of scientific life inside of the Institute and in the international community, for example by taking leading roles in reputable conferences, program committees, editorial boards of reputable journals, scientific societies and their local chapters, and science-related charitable organizations (such as those fighting illiteracy or promoting safe use of technology).

In such activities, they shall promote the values and image of Constructor Institute Schaffhausen by behaving professionally and ethically. They shall also exert care in choosing such community activities, avoiding dubious conferences and publications (such as so-called "predatory publishers", "predatory conferences", "vanity conferences", and "diploma mills").

An important scientific community activity is refereeing for reputable conferences and journals. In taking up refereeing roles, researchers shall apply professional rules of confidentiality and integrity (judging submitted publications by value, not self-interest of the researcher, and not taking advantage of the refereeing opportunity for plagiarism).

12. Reporting and conflict resolution

Any member of Constructor Institute Schaffhausen witnessing or suspecting a violation of the present Code of Ethics shall first report it to the leader of the corresponding research unit. If this step does not lead to a satisfactory resolution (or if the leader is in fact the suspected violator), the reporter shall contact the Provost of Constructor Institute Schaffhausen or, in case of conflict of interest, the President.

No member of Constructor Institute Schaffhausen shall be penalized for such reporting.

If internal procedures do not suffice to resolve the problem, the Faculty Senate shall be informed of the matter and may decide to appoint a special committee involving external experts to examine the issue and report to the Provost or President for appropriate action.

All researchers at Constructor Institute Schaffhausen, including newly hired researchers, shall be informed of the present Code of Ethics, and bound by it.

The Provost is responsible for publicizing and enforcing this Code and, if the need arises, to propose revisions for approval by the Faculty Senate.

13. References

(All URLs checked in August 2023.)

- [1] *ACM Code of Ethics and Professional Conduct*. Available at <https://www.acm.org/code-of-ethics>.
- [2] *European Code of Conduct for Research Integrity*. Available at <https://allea.org/code-of-conduct/>.
- [3] Sebastian Nanz, Faraz Torshizi, Michela Pedroni and Bertrand Meyer: *Design of an Empirical Study for Comparing the Usability of Concurrent Programming Languages*, in *Information and Software Technology Journal*, Elsevier, volume 55, 2013. Available at <https://www.sciencedirect.com/science/article/abs/pii/S0950584912001802>.

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