# Ethical Guidelines for the Authoring of Academic Work

## Introduction

In a curriculum as offered in universities, students learn to pursue academic studies and to do scientific work. In contrast to work at profit-oriented companies and many other areas, academic work is being done altruistically for the benefit of all of mankind. As such it is an integral part of academic ethics that research results are published and can be used freely by everybody. Working within this environment is only possible when all participating persons have a high integrity. Forgery of results, their deliberate misinterpretation, or even the declaration of the results of others as one's own results is luckily a very rare occurrence – a vital requirement for academic work to function. The few exceptions, which of course do happen from time to time, are not hushed up, but rather widely known and met with dismay. The career of the fraud usually suffers catastrophic damage.

Even so, there are no controlling entities in the academic realm which verify the compliance with the rules, since moral standards are very high. The purpose of so-called Peer-Reviewing, during which scientists anonymously review the submissions of their colleagues, is in assuring high quality, not in controlling the honesty (unlike doping tests in sports, for example).

Besides the main goals of the study – learning fundamental terms of computer science as well as the aptitude of independently solving problems in the quickly changing world of computer science – another goal is having graduates for whom high academic integrity has become natural.

## Academic work

Sound academic work distinguishes itself not just by those ethical guidelines which appear obvious. Obviously, fraud, plagiarism, and forgery are prohibited. It is also taken for granted that all co-authors and sources should be correctly cited. On the other hand, credit can only be given for an appropriate achievement.

Sound academic work is much more. Relevant results have to be published, even if they contradict one's own hypotheses. Results have to be both comprehensible and traceable; proofs and results have to be available. In particular, neither the academic community nor the public may be deliberately deceived. The trust gained, being an expert, may never be abused.

When drawing up academic papers or other documents, great care has to be taken. Specifications and revisions have to be taken very seriously.

## Plagiarism

Plagiarism is the declaration of the results of others as one's own results. During the course of study, plagiarism can occur mainly during preparation of homework, seminar papers, the Diploma-, Bachelor-, or Masters-Thesis, or works done during an internship, including computer programs. In academic works, it usual and also desirable to show new results in the context of the already known. However, it is very important to denote if those are one's own results or the results of others. Especially if a reference to other sources is missing, the implicit conclusion can be drawn that those are the results of the author(s). In particular, if such help from third parties is forbidden, this will be the case. When talking about group work, such as when homework is done, which may be solved in groups, one has to clearly mark that the work was not done alone.

There are some established techniques for labeling external results, which however differ depending on the academic field. Works in computer science usually have a numbered bibliography included at the end of the work; these are quoted in the text by the use of a number in squared brackets. Such rules can be found in the Chicago Manual of Style [1], for example.

Great care should be taken when directly quoting others. When quoting in verbatim, the text should be surrounded by double quotes, and has to be cited unaltered. Even misspellings must not be corrected. The only exception allowed is adding comments in square brackets. This technique is often used to mark omitted parts with ellipses […], marking with [sic] as verbatim transcription something surprising, uncommon, or archaic, or giving additional information, helpful because of the missing context. A (construed) example could be:

> "Then he [teacher] wrote potatoe [sic] on the blackboard "

In the field of computer science – as opposed to the field of humanities – such quoting in verbatim is scarce. Usually the results of others are reproduced with one's own words and notation.

Lastly, it should be made clear that for avoiding plagiarism, it is only necessary to make it clear that the results are not one's own. If it is clear from the context, an explicit reference is not necessary. However, it is sound academic practice to give exact references to the literature which serves as the source, helping the reader in finding it.

## Copyright infringement

Copyright infringement is using external material illegally in one's work. This can refer to texts, pictures, computer programs, or other material. In plagiarism, a copyright infringement may occur at the same time, however this is not necessarily true. While plagiarism is a breach of ethical guidelines, copyright infringement is a breach of the law. While submitting works for examination, the danger of copyright infringement is usually quite low. However, copyright law is very complex, so with modern methods of easily producing copies – especially when using electronic media – one can get into a lot of problems, if only based on one's intuitive understanding of the law.

## Specific Guidelines

The Department of Computer Science at the RWTH Aachen University attaches great importance to the compliance with all the principles of sound academic work already during the course of study. We expect that students also demand this of themselves. A strict system of controls will be avoided, since this goes against our idea of responsible students, and since it would not result in a good working atmosphere. However, a breach of this trust will be harshly sanctioned.

As orientation, we have drawn up the following guidelines:

1. Written seminary papers have to be self-penned; all sources have to be cited correctly.
2. The same is true for presentations, including all slides.
3. Concepts in seminary papers should preferably be illustrated with an example construed by oneself.
4. During exams, only allowed aids may be used.
5. Homework has to be done alone or in the designated groups.
6. During group work, all members have to give a reasonable contribution. Without such a contribution, someone may not be named as member, nor should he ask for this.
7. All statements have to be correct; relevant information may not be withheld.
8. Illegitimate aids may not be offered to others.

Additionally, we refer to bulletin 552, §7 of the RWTH Aachen University from March 28, 2000 [2].

## *Literature*

[1] *The Chicago Manual of Style*. University of Chicago Press, fourteenth edition, 1993.
http://www.chicagomanualofstyle.org/home.html. Free trial possible.

[2] *Grundsätze zu Sicherung guter Wissenschaftlicher Praxis an der Rheinisch-Westfälischen Technischen Hochschule Aachen*. Bulletin no. 552, RWTH Aachen University, 2000.
http://www-zhv.rwth-aachen.de/zentral/abt11_amtlbekannt_pdfs_552.pdf .

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