

Academic Ethics

Sanjay Wategaonkar

Department of Chemical Sciences

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Acknowledgements:

Prof. Sunil Mukhi

http://en.wikipedia.org/wiki/Academic_authorship

<http://web.mit.edu/policies>

Introduction

- Ph.D./I-Ph.D./M.Sc. Program(s)
 - Training
 - Lecture courses
 - Laboratory training
 - Research
 - Search for unknowns
 - Disseminate results
 - Publication
 - Presentations (seminars, posters, and so on)

Scientific Research

- What is required to succeed and excel?
 - Background knowledge
 - Skill set (experimental or theoretical)
 - Motivation
 - Scientific ethics
 - Authorship Ethics
 - Laboratory Ethics (Sreelaja Nair, DBS)

Authorship Ethics

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Scope of Authorship

- Initially students write home assignments, examinations, and project reports.
- During their stay at TIFR, Research Scholars may author:
 - posters
 - research papers
 - conference talks
 - review articles
- Authorship is not restricted to written documents, it can also refer to oral presentations.

Ethical questions arise in all these situations. It is important to be aware of them and think through the issues in advance.

Basic Tenet of Authorship Ethics

We must give proper credit to
whomsoever it belongs

Here are some of the reasons:

- All research is highly dependent on previous research
- Research is frequently done in collaborations and is therefore interdependent
- Authorship can and must make use of the work of others

The issue is how to apportion fair credit.

Topics

- (1) Assignments and examinations.
- (2) Document Writing (Reports, Thesis, Research papers).
- (3) Inclusion of figures and other data.
- (4) List of authors: inclusion/exclusion and ordering.

Assignments and Examinations

Objective: train students and test their ability

- Types of Assignments:
 - problem solving, Term papers
- Types of Examinations:
 - Open book or Close book

Assignments

- One may be or may NOT be allowed to interact or take help from your peers.
- It may be or may NOT be acceptable to discuss home assignments with others.
- **In situations** where the peer interactions/discussions to understand issues jointly is **permitted**
 - You may interact, but then one should go back and write down the assignment **on one's own**.
 - The latter exercise is very different from copying, with or without paraphrase, which is unethical.

Under any circumstances, it is highly unethical to copy material.

Examinations

- Exams may be open-book or open-notes.
- In open-book/notes situations the book/notes serve to help you remember or re-understand a point or a formula.
- However **even in this case you are not expected to lift material, either verbatim or paraphrased, from the book/notes.**
- Of course, in close book exams NONE of this is permitted.
- Also in any case you are NOT allowed to exchange any information whatsoever with other students taking the exam.

This attracts stiff penalties at TIFR.

AVOID THE MANTRAS

“No one will find out, therefore it's not wrong.”

“Everyone does it, therefore it's not wrong.”

Document writing

- It could be a research paper, perhaps the result of some experimental work or theoretical calculation or both OR **your document would have built on previously published material.**
- How do you use the previously published material?
 - Inappropriate usage amounts to **plagiarism** and is a serious form of unethical behaviour.
- Let's see what plagiarism is, and is not.

Various forms of using the previously published material

- ✓ Direct quote:
 - [Your material] As Mikami et al. [17] reported, “The red shift in the OH frequency is directly proportional to the proton affinity of the H-bond acceptor”. [continue with your material].
- ✓ Attributed statement:
 - [Your material] Mikami et al. [17] have pointed out that the red shift in the OH frequency is directly proportional to the proton affinity of the H-bond acceptor. [continue with your material].
- ✗ Unattributed quote:
 - [Your material] The red shift in the OH frequency is directly proportional to the proton affinity of the H-bond acceptor [continue with your material].

Various forms of Plagiarisms

- Plagiarism can be **intentional** or **unintentional**.
- There is also **self-plagiarism**: copying your own ideas or work in multiple manuscripts as if they were independent pieces of work.
- Of course one is allowed to write, say, a review article based on one's own previous work. But then it has to be **made clear that it is a review article**.
- **Duplicate publication**: publishing the same paper in more than one journal, is also a form of plagiarism.

Inclusion of figures and other data

- Particularly in recent times, it is easy to copy figures made by others into one's own work.
- This must be **attributed**, otherwise it amounts to **plagiarism**.
- The question sometimes arises whether it is enough to attribute the figure, or does one also need to **seek the author's permission to reproduce the figure**.
- The latter question falls in the domain of copyright, which is a legal issue.
- Fair Use: “Fair use is a doctrine [in United States copyright law] that allows limited use of copyrighted material without acquiring permission from the rights holders.....It provides for the legal, non-licensed citation or incorporation of copyrighted material in another author's work.”

List of authors: inclusion/exclusion and ordering

- A collaborative research project can lead to many results to which several different people have contributed.

Who is to be an author on a given paper? This is a tricky question.

- **Authorship can be granted for many different types of contribution:** conceiving the project, designing the experiment, carrying out the experiment, performing theoretical calculations... even supplying special high-quality materials which are essential to the experiment.
- **The order of authorship depends greatly on the field.** In some areas, the senior most author is first. In other fields the senior author is last. In some areas, authorship is alphabetical, no matter who did what.

- **Guest/honorary authorship:** making someone an author who really does not qualify, solely because of their power: e.g. a head of department or head of a lab. **This is unethical on both sides.**
- **Ghost authorship:** not listing someone as an author though they have done a major part of the work. This is sometimes done with the agreement of the person concerned, to hide their “double role” (typically involving a conflict of interest).
- But there will always be tricky cases involving an honest difference of opinion: e.g. a guide feels a student has not contributed enough to be an author, but the student feels he/she has contributed enough.

The only generic recommendation here is that authorship criteria should be agreed upon in advance, and preferably in writing.

Ethics in the research lab:

General Guidelines

Recording of Experimental Data

Important to:

- Write what you did (can't leave it to your memory to remember all details)
- Reanalyze/ Reinterpret old results/validation of results
- Reproducibility of one's work
- Protecting one's intellectual property
- Determining ownership of ideas

The Laboratory Notebook is sacred.

The general guidelines for book-keeping should be applicable to most research labs.

Some guidelines/ details may vary depending on the nature of your work.

Your department/PI will tell you what is necessary.

If you are not sure , ask your PI!

Components of the Notebook

Name

Dates of use

Contacts if lost

Number if one of many

General Bookkeeping Rules

- Each person in the lab should maintain a hardbound laboratory notebook with continuously numbered pages as a permanent record of his or her work and ideas
- The notebooks should be kept in a safe place and not taken home

General Lab Rules Continued

- Notebooks and their content are the property of the laboratory.
- The original notebook and all related data should be returned to the Laboratory PI when completed, upon request, or upon leaving the lab.

Additional Considerations

- The lab notebook and its content are “confidential”.
- Exercise great care in preserving them
- Report the loss or theft of a research notebook to your group leader immediately

Additional rules:

- Keep filling in a table of contents-listing each/key experiments (page numbers) (and the location of all pertinent data)
- Entries should be made in ink-not in pencil
- Corrections should be made by making a single line-out (leaving the original legible) then adding the correction along with ones initials and the date

Each Experiment Should Include

- Title and date
- (Names of persons involved in the experiment and how they participated)
- Statement of purpose: list the specific question(s) to be answered by the experiment

Research: Search of truth and understanding

- No room for lying and cheating (yourself and others)
- Speak up (tell your PI/ higher authority) if you see evidence of this.
- Discuss each others' results critically: criticism is important for scientific progress and it is important to take criticism in the right spirit.
- Build scientific temper.