

Co – authorship



Academic authorship is used as a basis for reputation, employment, and even income. Authors are writers, but where collaboration is the norm, writing is not always seen as the only criterion for being included as an author. Collecting or analyzing data, contributing to design, or simply being part of a project, can also count as authorship. Who should be included on the by-line can be controversial. For this reason, most journals and scientific communities have established ethical guidelines that regulate co-authorship.

If you are a co-author you should be aware of:

- the guidelines of co-authorship that apply in your research field
- different ethical aspects of co-authorship to help prevent misuse
- how to handle authorship disputes

Ethical guidelines

Most journals and scientific communities have ethical guidelines that regulate authorship. Because of different types of ethical misconduct, these have been more clearly defined in recent decades.

Humanities, law and theology



Within humanities, law and theology it is still most common to publish as a single author. Usually the same person has formulated the problem, collected and edited data, and written the text. Authorship relates to the concept of author rights within copyright law.

Only the persons that have contributed to documentation, analysis and writing can be included as authors of a work. It is the act of writing that forms the basis for authorship. Therefore, a person that gives some kind of contribution to documentation, formulation of ideas to the analysis, comments on the writing, or gives technical help, will not be qualified as an author, unless they have also contributed substantially to the writing of the work.

The criteria for authorship within humanities, law and theology are absolute when it comes to the demand of writing. There exist large collaboration projects within these disciplines as well, but unlike those in the medical and science subjects, it is not necessary to include all contributors on the by-line. Other contributors than the writer are usually mentioned in the acknowledgements. Co-authors are usually listed alphabetically.

Medicine: The Vancouver rules



A scientific publication in medicine will usually have multiple authors. What counts towards authorship is most often regulated by the Vancouver rules.

As an attempt to solve the problems with misuse of authorship, the International Committee of Medical Journal Editors (The Vancouver Group, 1985) worked out a standardized set of criteria for authorship, the Vancouver rules. Most medical journals, faculties and research institutions support the authorship criteria of the Vancouver Group. These rules have become an international standard for authorship within medical disciplines.

Authorship should be based on the following:

- a) substantial contribution to conception and design, or acquisition of data, or analysis and interpretation of data;
- b) drafting the article or revising it critically for important intellectual content; and
- c) final approval of the version to be published: and
- d) agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

All criteria (a, b, c and d) must be fulfilled.

While in humanities and social sciences authorship is based on writing a text, the Vancouver rules also include collaborative efforts as central to the notion of authorship.

Social sciences and psychology



Whithin social sciences authorship is most commonly based on writing, as in the humanities. However, there may occur examples where authors can be included on the author list without writing. In such instances the area of research relate more to the medical and science concepts of co-authorship. For example, the American Psychology Association (APA) has guidelines similar to those in medicine for co-authorship. Authorship is not only attributed to persons writing a manuscript, but should include others who have made a substantial contribution to a study.

Science, mathematics and technology

Natural sciences, mathematical and technological subjects do not have a universal standard for authorship, but guidelines and accepted practices are still available. There are researchers who research and publish by themselves, and there are projects that consist of several thousand members, such as those at CERN, where the list of authors can consist of a great number of people.

Although standards vary, they all demand some degree of contribution and responsibility for the work. As an example, the editorial policy of the journal PNAS states that “Authorship should be limited to those who have contributed substantially to the work.”

Some examples of guidelines in science, mathematical and technological disciplines:

- The International Union of Pure and Applied Physics (IUPAP, 2005) states that co-authors should always be able to take full responsibility for the work if they have given a significant contribution to it. However, significant contribution is not clearly defined.
- The guidelines of the American Physics Society (APS, 2002) states that authorship should be limited to those who have made a significant contribution to the concept, design, execution or interpretation of a research study. Individuals who have contributed to the study in other ways should be acknowledged, but not identified as authors.
- The American Chemical Society (ACS, 2011) has criteria for co-authorship similar to those in physics. ACS specifies that authors share responsibility and accountability for the results presented in a scientific work.
- The guidelines of the American Mathematical Society and the American Statistical Association (AMS, 2005; ASA 1999) state that all authors should have given significant intellectual contributions to the work to be included on the author list. There can be exceptions to this rule, but these have to be specifically explained. Mathematical publications usually list the authors alphabetically (The Hardy-Littlewood Rule). The rule states that anyone that joins collaboration in good faith will be listed equally as an author, regardless of the relative contributions they end up making.
- Guidelines for authorship in biology are closely tied to the guidelines for biomedical publishing (the Vancouver rules). Authors should make a substantial intellectual contribution to the work in question. Administrative and economic responsibility alone do not qualify for authorship.

CO-AUTHORSHIP IN PHYSICS – BEHIND THE SCENES OF CERN

Physics is one of the areas where the Vancouver protocol does not have a very strong foothold, simply because the line of work is so different from many other research fields. There can be years of work behind

the final results and conclusions which led to a written article. Håvard Helstrup – Professor, Relativistic Heavy Ion Physics (ALICE/CERN), explains:

Central questions of co-authorship

As the importance of authorship has grown, so has the number of authors on each article. Research has become more interdisciplinary and international, and is often carried out as cooperation projects with many participants.

Some central questions concerning co-authorship:

- Why is it important to be credited as an author?
- What kind of contribution should qualify for authorship?
- What should be the order of authors on the by-line of an article?

Listing of authors on the by-line of an article can lead to conflict. The leader of a project may decide the order of authors. Young researchers do not always have much say in the matter, and their contribution to the work can be unaccredited.

Conflicts concerning co-authorship are not uncommon. According to a study of six prestigious medical journals in 2008, every fourth article had at least one unjustified author, while every tenth article failed to include authors that should have been a part of the list (Wislar et al., 2011). Another study has shown that more than two-thirds of corresponding authors disagreed with their co-authors regarding the contribution of each author (Illakovac et al., 2007).

Authorship is about taking responsibility for one's own work. Co-authors should be able to support the major results presented in a paper. Reputations can be discredited if their name appears on a paper they have neither written nor reviewed and approved. Additionally, authors are expected to keep the research data that the study is based on for later examination, and should provide information about any commercial or non-commercial conflicts of interest.

Co-authorship influences the financing of research. In some countries (like Norway) the government allocates money to research institutions based on authorship contribution. The money given for a publication is divided between the authors that have contributed. This is a system that favours individual authorship more than co-authorship. If a publication has just one author, or if all the authors are from the same institution, the institution receives the full economic benefit.

The main problem of co-authorship is that some people may have contributed to the publication, but not enough to be on the by-line as an author. This has led to a suggestion to establish a new system based on contribution as well as authorship. Such a system would specify the individual

contribution, and this information would be made available in the published work. One suggestion is that contributors that do not fulfil the criteria for authorship should be mentioned in the acknowledgements instead.

The contribution system has not become a success: Only some journals use it, and since there is no international classification system to describe different types of contributions, the consequence is that other contributors than authors are not credited for the work.

DILEMMA – HOW TO LIST AUTHORS IN A COLLABORATIVE WORK? ✓

A PhD student has been working on an article in collaboration with her supervisor and other students. What to do if there arises a dispute over co-authorship?

Handling authorship disputes ✓

Guidelines governing co-authorship vary between disciplines and even research groups. Still, there are some general principles that you should be aware of to be able to avoid authorship disputes, and to know how to resolve such disputes if they occur.

There are two types of authorship disagreement:

1. **Disputes:** These are usually about whether someone's contribution is substantial enough to be included on the by-line, and can therefore be a question of interpretation. Disputes can most often be solved by negotiation with the other members in the research group.
2. **Misconduct:** These are cases where someone is proposing listing of co-authors in a manner that does not conform with the guidelines of the journal. These kinds of disputes can be more difficult to solve: If you decide not to act this could make you an accomplice to unethical conduct. On the other hand, acting might damage your future career. One solution can be to explain to your co-authors that the author list does not follow the guidelines of the journal, and that therefore there may be a risk of the article being judged for misconduct.

You should be aware of the following tips to help prevent authorship disputes:

1. **Start discussions at an early stage:** Start discussing who will be on the author list and the order of authors at the point when you are planning your research, and keep on discussing these issues throughout the process of writing and submitting the manuscript. Who is an author and the position on the by-line might change during a research project. The research group should therefore try to have a common understanding of what kind of work merits authorship and who has the main responsibility for writing, submitting and editing the work.

2. **Address emotional issues:** Group dynamics and interpersonal issues can have huge impact on a project. People that spend a lot of time on a project have strong feelings about how results should be interpreted and presented, and different people may have different interpretations of how things should be done. Often it will be useful to address problems directly by acknowledging disagreements, setting boundaries and trying to find common ground. Sometimes it might be necessary to involve a neutral third party in the process.
3. **Sign a formal agreement:** If possible, authorship should be decided before you start working on each article. Every team should have a written agreement that states the roles of the different contributors.
4. **Be consistent:** Criteria for authorship and order on the by-line should be consistent within the research group, and also with the norms of authorship within the community.
5. **Know the guidelines:** You can help encourage a good culture of co-authorship by being aware of journal-specific guidelines, as well as general guidelines of co-authorship within your field.
6. **Take responsibility:** All authors should check the last version of a publication before it is submitted, it should be possible to withdraw your name if you disagree with the interpretation of the results. If you have been put on the author list without agreeing, or if you have been wrongly omitted, you should inform the other authors. In some instances it is possible to contact the journal to ask for a correction after an article is published, but an editor is unlikely to add your name on the by-line unless all authors agree.

References



Ilakovac, V., Fister, K., Marusic, M., & Marusic, A. (2007). Reliability of disclosure forms of authors' contributions. *CMAJ*, *176*(1), 41-46. doi: 10.1503/cmaj.060687

Wislar, J. S., Flanagan, A., Fontanarosa, P. B., & Deangelis, C. D. (2011). Honorary and ghost authorship in high impact biomedical journals: a cross sectional survey. *BMJ*, *343*, d6128. doi: 10.1136/bmj.d6128