

Authorship Guidelines

INTRODUCTION

Authorship is an explicit way of assigning responsibility and giving credit for intellectual work. The two are linked. Authorship practices should be judged by how accurately they reflect actual contributions to a manuscript. Authorship is important to the career development, reputation, academic promotion, and grant support of the people involved as well as to the strength and reputation of the institution.

Most disciplines have established standards for authorship. As interdisciplinary efforts and research teams with highly specialized roles grow, however, these standards become less well-defined, making both the constitution of the group of authors and the order in which they are listed more complicated. Regardless of discipline, making a substantial contribution to the work and being accountable for the work and its published form are common requirements.¹

In practice, many authorship practices fall short of reasonable standards. Senior researchers may inappropriately relegate junior faculty, postdoctoral scholars, or students to the Acknowledgements when they merit co-authorship. Alternatively, junior investigators may believe that including senior colleagues as co-authors will improve the credibility of their work and its chances of publication, even if those colleagues made no substantial intellectual contributions to the work. Some researchers may have developed their views of authorship at a time or in a place where their mentors were listed as authors because of their logistic, financial, and administrative support, or because of perceived future support or influence. Authorship may not be warranted in these situations.

Disputes sometimes arise about who should be listed as authors of an intellectual product and the order in which they should be listed. When disagreements over authorship arise, they can take a substantial toll on the good will, effectiveness, and reputation of the researchers involved and their academic community. Many such disagreements result from misunderstanding and failed communication among colleagues and might have been prevented by a clear, early understanding of standards for authorship that are shared by the research team. It is a good practice for co-authors to decide among themselves who will take responsibility for ensuring intellectual contributions are fulfilled through to the completion of the work.

Authorship issues in universities usually concern published reports of original, scientific research. However, the same principles apply to all intellectual products, whether published, presented verbally, included in a thesis or dissertation, or prepared for local use. The principles apply regardless of whether the purpose is dissemination of new discoveries and ideas, review and synthesis of existing knowledge, or educational applications.

Mines has endorsed the following guidelines. Although authorship practices differ from one setting to another and individual situations often require discussions among members of the research team, variations in practices should be within these basic guidelines.

AUTHORSHIP PRINCIPLES

1. Everyone who is listed as an author should have made a substantial, direct, intellectual contribution to the work. For example, in a research report, they should have contributed substantially to efforts such as study conception, study

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¹. <https://publicationethics.org/resources/discussion-documents/authorship>

design, methods development, study execution, data analysis and/or data interpretation. Honorary or guest authorship is not acceptable. Authorship is not always appropriate for technical specialists or assistants who have provided, collected, or analyzed subsets of data, samples, figures, resources, etc. While provision of technical services, funding, or materials may be essential to the work, these roles do not always represent sufficient intellectual contributions to justify authorship of the final product.

2. Everyone who has made substantial, direct, intellectual contributions to the work should be included as an author. Everyone who has made other important contributions should be mentioned in the Acknowledgements section of the publication.
3. Typically, a lead author takes responsibility for preparing a written product based on a research project even if they do not have an in-depth understanding of every aspect of the work. For most publications, this person takes the lead on the writing process and the submission process to the publication venue (e.g. a journal).
4. In a university setting, a student who has led a research project may be the lead author of the written product. Faculty advisors often, but not always, serve as the corresponding author if the work is submitted for publication. For a chapter to be included in a student's thesis or dissertation, the student is expected to be the lead author.
5. The lead author should facilitate open communication regarding the authorship issue among all contributors throughout the research and writing process, beginning early in the research project.
6. All authors should participate in reviewing drafts of the manuscript and approving the final version.
7. A good practice is for the lead author to ensure that all other authors meet these basic standards for authorship and to prepare a concise, written description of their contributions (see Acknowledgements, for example). To be most effective, this process requires consensus among all the contributors. Many scientific journals currently require a description of the specific contributions of each author or contributor in each paper they publish.
8. These authorship guidelines apply to any co-authored publications that are part of theses and dissertations written by graduate students at Mines. As stated in [Mines' thesis guidelines](#), theses and dissertations may include multi-authored chapters, with the student as lead author, that have been prepared or accepted for publication. When such papers are included in a thesis after they have been published (or accepted), the student should also include acknowledgements or descriptions of coauthors' contributions as described in this document and the thesis guidelines. Statements from any co-authors not on the student's committee, giving permission to include the co-authored publication in the thesis, are also required. If a chapter has been prepared with the intent of future submission to a journal as a co-authored manuscript but has not yet been submitted or accepted for publication when the thesis is completed, the student is encouraged to include acknowledgements of other contributors' roles if deemed appropriate by their committee.
9. If a student wishes to include a co-authored publication in their thesis for which they were not the lead author, the placement of that publication should be discussed with the committee, given Mines's expectation that students are the lead author of all the chapters in their theses. It may be most appropriate for the student to place a non-lead-authored publication in an Appendix to their thesis, and/or include a chapter that presents only the student's specific

contribution to the non-lead-authored publication.

AUTHORSHIP ROLES

- a. Lead Author (also known as the Primary Author) - This person typically has done the majority of the work and drafting of the manuscript and takes on additional responsibility for the accuracy and integrity of the manuscript.
- b. Co-Authors - anyone contributing to the manuscript such that they meet the criteria established for authorship. Co-authors are responsible for reviewing and approving the final submission.
- c. Corresponding Author - takes primary responsibility for the submission and communication with the publisher and responds to any questions about the work during and after publication. The person with this role may be the lead author but does not have to be. Often this is the PI or most senior person involved in the work, who has additional responsibility for the accuracy and integrity of the manuscript.
- d. Acknowledgments – the Acknowledgments section of a publication lists people who contributed to the work but in a manner that did not meet the criteria established for authorship.

ORDER OF AUTHORSHIP

Many different ways of determining order of authorship exist across disciplines, research groups, and countries. Examples of authorship policies include (a) descending order of contribution, (b) placing the person who took the lead in writing the manuscript or doing the research first and the most experienced contributor/program lead last, and (c) alphabetical order. While the significance of a particular order may be understood in a given discipline, order of authorship has no generally agreed-upon meaning.

As a result, it is not possible to interpret from order of authorship the respective contributions of individual authors. Promotion committees, granting agencies, readers, and others who seek to understand how individual authors have contributed to the work should not read into order of authorship their own meaning, which may not be shared by the authors themselves. In summary, it is good practice:

1. For the authors to decide the order of authorship together.
2. For the lead author to include a concise, written description of how order of authorship was decided in the written description mentioned in (7) above.

IMPLEMENTATION

1. Research teams should discuss authorship issues early and frankly in the course of their work together.
2. Disputes over authorship are best settled by the authors themselves. If the authors cannot come to a resolution, a formal complaint may be filed, bringing the matter to the attention of the Vice President for Research and Technology Transfer (see Mines Policy and Procedure for Research Integrity) in the Faculty Handbook, below).
3. Academic departments, educational programs, and other Mines organizations sponsoring scholarly work should post, and also include in their procedure manuals, both these guidelines and a description of their own customary ways of deciding who should be an author and the order in which they are listed. They should include authorship policies in their orientation of new members.

4. Expectations and guidelines for authorship are a component of the responsible and ethical conduct of research course that is required for all researchers at Mines.
5. These guidelines are to be reviewed periodically because both scientific investigation and authorship practices tend to change over time.

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REFERENCES

Policy and Procedure for Research Integrity, Mines Faculty Handbook, <https://catalog.mines.edu/facultyhandbook/10boardpoliciesprocedures/103-research-misconduct-policy-complaint-procedure/>.

Thesis Writer's Guide, <https://www.mines.edu/graduate-studies/thesis-writers-guide/>.