

Faculty of Science Guidelines for Determining the Authorship of Scientific Work

Context and Background

Authorship and publication records are used as a measure of achievement, recognition and productivity in the scientific community. In an environment where collaboration is highly valued, and achievement and contribution are measured by a researcher's record of publications, it is critical that contributions to a research project and subsequent publications are acknowledged accurately.

The following guidelines are intended to provide guidance on how to approach the issue of authorship, especially in areas where many people are contributing to the research endeavour. The Faculty of Science would like to encourage discussion about authorship, raising awareness of some of the issues connected to the topic. This is not an official policy document, but a guideline to stimulate these discussions among participants in the research process (faculty, research staff, post-doctoral fellows, and graduate and undergraduate students). It also offers suggestions on how to approach decision-making regarding the authorship of academic papers.

The guidelines do not supersede the University's policies on research ethics: [Policy on Research Ethics at McMaster](#) and the new [Research Integrity Policy](#) (which supersedes *Procedures for Inquiries and Hearings Regarding Allegations of Misconduct in Research for Faculty, Staff, and Post-Doctoral Fellows*), nor do they supersede the requirements of external agencies, such as those set out in the *Tri-Agency Framework: Responsible Conduct of Research*. **The Faculty of Science acknowledges that decisions regarding authorship remain the responsibility of the researcher or researchers directing the research and should include input from all members of the research team. It is also recognized that each discipline, and even each journal, may have specific written and unwritten requirements and conventions regarding authorship and the order of authors on a given paper.** Researchers should always consider these factors when making a decision about authorship.

Guidelines for Determining the Authorship of Scientific Work

- To avoid disputes about authorship, contribution to research or the order of authors on a publication, clear communication with the research team about the requirements and expectations regarding authorship needs to happen throughout the research process. The researcher(s) responsible should clearly articulate a description of meaningful contribution to a research project and ensure that all members of the research team (faculty, research staff, post-doctoral fellows, and graduate and undergraduate students) understand their role in the research project and the preparation of subsequent publications.
- Continuous communication throughout the research process is essential because roles and contributions may change as the research progresses and data are collected.
- The definitions of authorship provided below and *any discipline-specific factors* need to be considered when determining who should be listed as an author. Be sure to evaluate each team member's contribution to the project. Hours worked is not a meaningful criterion. Neither is only helping with data collection. *All authors need to have made a substantial intellectual contribution to both the research and subsequent manuscript.*

- Once the criteria for authorship have been met, the order of named authors must be determined. It is acknowledged that different fields have different conventions. These should be considered when determining authorship and the order in which authors may appear on a paper. *It is of primary importance that team members receive proper credit and acknowledgement of their work.* It can be helpful to maintain documentation to record team members' contributions over the span of the research project to help evaluate the contribution of a specific member of the research team.
- All people listed as authors on a publication should have the opportunity to review the full publication before its submission and provide comments to the corresponding author on the paper. The corresponding author should receive and retain copies of return communication from all authors listed to ensure that authors have indeed received the manuscript and the offer to submit comments.
- If a contributor does not meet the qualification for authorship discussed above, but has contributed to the research project, such as by providing technical expertise, supplying bacterial strains, constructs, crystals or other samples, providing computer code that is adapted for the study, or contributing to the development of an instrument used in further studies, his or her contribution can be mentioned in an acknowledgement that accompanies the published paper. However, in some fields, contribution in terms of developing an instrument or providing crystal samples may constitute authorship. Discussions about expectations concerning authorship should take place throughout the research project to avoid disputes later.
- In the cases of follow-up studies, all people listed as authors on the publication should have made *another unique substantial intellectual contribution to both the current research and subsequent manuscript.* Participating in the initial study does not necessarily qualify a person for authorship on subsequent studies.
- In cases where disputes about authorship arise and a formal complaint is received, they will be investigated using established university protocols, as described in *McMaster's Research Integrity Policy.*

The Faculty encompasses a broad range of disciplines, each with its own requirements and conventions regarding research conduct and authorship. This makes it a challenge to provide guidance that is relevant to all disciplines in a concise document. Several existing policies govern research conduct and ethics, define authorship, and describe what criteria should be followed when determining authorship and the order of authors on a publication. More information on the sources reviewed to develop the Faculty of Science *Guidelines* can be found at the end of this document.

Faculty members also have responsibilities to the students whom they are supervising, as described Section 1.2 of the Graduate Calendar, "Responsibilities to Graduate Students". Specifically section 1.2.5 describes the responsibilities of the "Faculty Advisor". In all cases, the student's interests should be of paramount concern.

Additional Information

The University's policies on research ethics, *Policy on Research Ethics at McMaster* and *Research Integrity Policy*, govern the conduct of researchers at McMaster. The *Policy on Research Ethics at McMaster* states in its opening paragraph:

The two principles underlying integrity in research in a university setting are these: a researcher must be honest in proposing, seeking support for, conducting, and reporting research; a researcher must respect the rights of others in these activities...It is incumbent upon all members of the [McMaster] university community to practice and to promote ethical behaviour.

In addition, the *Tri-Agency Research Integrity Policy* governs the conduct of researchers applying for or receiving funding from the Canadian Institutes of Health Research, the Natural Sciences and Engineering Research Council and the Social Sciences and Humanities Research Council, and specifically addresses the responsibilities of researchers regarding the dissemination of results and authorship.

Including as authors, with their consent, all those and only those who have materially or conceptually contributed to, and share responsibility, for the contents of the publication or document, in a manner consistent with their respective contributions, and authorship policies of relevant publications. (Section 2.1.2d)

The *Uniform Requirements for Manuscripts Submitted to Biomedical Journals* (informally known as the Vancouver Protocol) from the International Committee of Medical Journal Editors have had a huge influence in the field of biomedical publishing. The foundation of the *Uniform Requirements* is the following criteria for authorship:

1. substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;
2. drafting the article or revising it critically for important intellectual content; and
3. final approval of the version to be published.

The *Uniform Requirements* note that "acquisition of funding, collection of data or general supervision of the research group do not alone constitute authorship."

Similarly the American Physical Society defines authorship as follows:

"Authorship should be limited to those who have made a significant contribution to the concept, design, execution or interpretation of the research study. All those who have made significant contributions should be offered the opportunity to be listed as authors. Other individuals who have contributed to the study should be acknowledged, but not identified as authors. The sources of financial support for the project should be disclosed."

For more detailed information on authorship, please consult the sources below. The resources presented below are not meant to be exhaustive or comprehensive. Other sources you may want to consult include specific sources applicable to your field, such as policy statements and ethical guidelines

of academic societies and the specific requirements of the journal to which a manuscript is being submitted.

Resources to Consult

Policy on Research Ethics at McMaster

<http://www.mcmaster.ca/policy/faculty/Conduct/ResearchEthicsPolicy.pdf>

Research Integrity Policy

<http://www.mcmaster.ca/policy/faculty/Research/Research%20Integrity%20Policy.pdf>

McMaster Graduate Calendar, Section 1.2, "Responsibilities to Graduate Students"

<http://graduate.mcmaster.ca/graduate-calendar>

Tri-Agency Framework: Responsible Conduct of Research

Governs the conduct of researchers applying for or receiving funds from the Tri-Councils – Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC) and the Social Sciences and Humanities Research Council (SSHRC).

<http://www.rcr.ethics.gc.ca/eng/policy-politique/framework-cadre/>

Uniform Requirements for Manuscripts Submitted to Biomedical Journals (informally known as the Vancouver Protocol), a comprehensive document that covers many ethical issues related to publishing biomedical articles as well specifics on how to prepare a manuscript for submission.

http://www.icmje.org/urm_full.pdf

Specific definitions of byline authors in the *Uniform Requirements for Manuscripts Submitted to Biomedical Journals*

http://www.icmje.org/ethical_1author.html

American Chemical Society, *Ethical Guidelines to Publication of Chemical Research*

<http://pubs.acs.org/userimages/ContentEditor/1218054468605/ethics.pdf>

American Mathematical Society, *Ethical Guidelines*

<http://www.ams.org/about-us/governance/policy-statements/sec-ethics>

European Math Society, *Code of Practice*

<http://www.euro-math-soc.eu/system/files/COP-approved.pdf>

American Physical Society, *Supplementary Guidelines on Responsibilities of Coauthors and Collaborators*

http://www.aps.org/policy/statements/02_2.cfm#supplementary_guidelines1

A Graduate Student's Guide to Determining Authorship Credit and Authorship Order, APA Science Student Council

<http://www.apa.org/science/leadership/students/authorship-paper.pdf>

Reflections on Determining Authorship Credit and Authorship Order on Faculty–Student Collaborations

(*American Psychologist*, November 1993. Vol. 48, No. 11, 1141–1147. Copyright 1993 by the American Psychological Association, Inc.)

<http://www.csulb.edu/~psy301/authorcre.html>