

Scientific Integrity

Best Practices for Designating Authorship: Essential Concepts

EPA's Scientific Integrity Policy encourages the publication and presentation of research and the communication of scientific information to the public. EPA's Principles of Scientific Integrity require that EPA employees represent and acknowledge the intellectual contributions of others in published work such as journal articles and technical reports and refrain from taking credit for work with which they were not materially involved.

Authorship practices are often guided by scientific disciplines, institutions, research groups, and the policies of journals or publishers. This can lead to ambiguity, uncertainty, and inconsistency in how authorship is assigned to EPA work products. EPA Best Practices for Designating Authorship fulfills the need for a common understanding of the best practices for recognizing the contributions of individuals through authorship of EPA work products and this document summarizes some essential authorship concepts.

EPA's Scientific Integrity Policy also affirms the Agency's commitment to transparency. The designation of authorship plays a critical role in transparency by identifying who is responsible for the information and conclusions in EPA work products and how they were developed.

This document does not create new rules for designating authorship. The best practices apply prospectively to any EPA work product where authorship is designated, including but not limited to journal articles, reports, presentations, posters, documentation of models or software, communication products, technical support documents, and guidance documents.

Although this document identifies a variety of best practices, the most important is to discuss responsibilities and authorship among participating individuals before a project commences and periodically as work progresses. Most authorship disputes can be avoided or resolved by engaging in open and frank conversations early and often.



Trainees, Technicians, and Contractors

Trainees

Students, postdoctoral fellows, interns and other trainees (hereafter referred to as “trainees”) can be an important part of a project team. Because trainees are typically at an early stage in their career and are appointed for a limited period of time, they are sometimes viewed as subordinate by other members of the project team who have more experience and seniority. Nevertheless, the same authorship criteria apply to all members of a project team including trainees. Authorship on any EPA work product should always represent the significance of the individual's contribution to the work product regardless of institutional status.

Trainees often rely on the recommendations of more senior members of the project team for future job opportunities and career advancement. The power disparity between trainees and senior members of a project team can lead to trainee reluctance to dispute authorship assignments. All authors are responsible for taking appropriate action if they believe they have identified any type of authorship abuse associated with the work product.

Technicians

Technicians are subject to the same authorship best practices as all other members of a project team. A technician should be listed as an author if the technician fulfilled all of the authorship criteria. However, simply performing routine tasks does not qualify a technician for authorship.

The possibility of authorship can be a powerful incentive that enhances employee engagement. If a technician and their supervisor agree that the technician is a candidate for authorship on a work product, the supervisor should encourage the technician early in the project to engage in the full spectrum of intellectual activities that result in meeting all authorship criteria.

Contractors

Project contributors who work under an EPA contract and are not federal employees are subject to the same authorship best practices as other members of the project team. Because naming contractors as authors could create the appearance of a contractor performing an inherently governmental function, the EPA Acquisition Regulations require the clauses specified in Appendix 2 of *Best Practices for Designating Authorship* to be included in any contract that could result in the publication of work performed under the contract. In addition, the text,

“Contractor's role did not include establishing Agency policy”

must also be included in any work product that lists authors who worked under an EPA contract.

Other Important Authorship Topics

Please refer to the full *Best Practices for Designating Authorship* for important information about plagiarism, self-plagiarism, author order and roles and responsibilities, authorship approval and dispute resolution, shared authorship, contribution statements and authorship agreements, conflicts of interest and bias, and copyright issues.

Authorship Criteria

The term “author” applies to any individual who makes a substantial contribution, as defined below, to an EPA work product. Authorship refers to the listing of contributors to the work product.

To qualify as an author, an individual must make a substantial contribution to the work product that fulfills all of the following three criteria:

1. Made a substantial intellectual contribution to the work product. An individual may make a substantial intellectual contribution in several different ways, including:
 - a. Conception and design (e.g., formulation of hypotheses, refining research ideas, development of study objectives; or the definition of experimental, statistical, modeling, or analytical approaches), or
 - b. Acquisition of data or development of models (e.g., non-routine fieldwork, such as adapting or developing new techniques or equipment necessary to collect essential data; non-routine lab work such as development of new methods or significant modification to existing methods essential to the research; literature searches; theoretical calculations; and development and application of modeling specific to the project), or
 - c. Analysis and interpretation of data.
2. Wrote or provided editorial revisions to the work product containing critical intellectual content.
3. Approved the final version to be published and agreed to be accountable for all aspects of the work product.

Any individual who has met these three criteria, independent of their rank, status, or affiliation, should be named as an author. Any individual who has not met these three criteria, independent of their rank, status, or affiliation, should not be named as an author. An individual who knowingly publishes the intellectual work of another without giving appropriate credit has committed plagiarism. Suppressing authorship by unreasonably interfering in the ability of an individual to meet these three criteria is a violation of EPA’s Scientific Integrity Policy and should be reported to EPA’s Scientific Integrity Official.

Acknowledgements

Individuals who make a substantial contribution to a work product but do not meet the authorship criteria specified above should be listed in an acknowledgments section with a brief description of their role, if possible. Contributions worthy of acknowledgment can include literature searching, contract or project management, supervision, mentorship, statistical consultation, manuscript review, advice, provision of materials or space, routine assistance, financial support, and grammatical or stylistic editing. Individuals listed in the acknowledgments section should be notified before final publication of the work product.

Common Authorship Abuses

All of these types of authorship are unacceptable:

- *Honorary, gift, guest, or courtesy authorship* is authorship given to an individual who does not meet the criteria for authorship. This type of authorship is provided for a variety of reasons. Sometimes authorship is provided to a senior figure who expects or demands it because he/she is in a position of authority (e.g. branch chief, division director, or office director) or controls the project's funding. Authorship is sometimes improperly provided to senior figures to enhance the perceived credibility of the work product or increase the likelihood of acceptance.
- *Ghost authorship* is the failure to give authorship to an individual who meets the criteria for authorship. Ghost authorship is also sometimes used to purposefully obfuscate the involvement of an individual or institution in a work product.
- *Surprise authorship* is when an individual finds that he/she has unknowingly been given authorship for a work product without having contributed to the work or accepting responsibility for the publication's content.
- *Duplicate production authorship* is when material is publicly disseminated that is the same or substantially similar to material previously disseminated without a clear, visible reference to the original material. Duplicate production authorship is a form of self-plagiarism (see Section 11 of *Best Practices for Designating Authorship*). If a work product contains the same or substantially overlapping material that was previously disseminated, the work product must identify the duplicate material and cite the original source. Publication of material that was previously published in preliminary form such as an abstract, poster or platform presentation at a scientific meeting, or a letter to the editor, is not considered duplicate production authorship or self-plagiarism.
- *Anonymous authorship*. Normally it is not appropriate to use pseudonyms or to publish scientific or technical reports anonymously. In rare cases when an individual can make a credible claim that revealing his or her name as an author could cause serious hardship (e.g., threat to personal safety or loss of employment), anonymous content might be appropriate. The Scientific Integrity Official is available to help make such determinations.
- *Filial or family authorship* occurs when an EPA author includes a relative (e.g., a child or spouse) as an author without first consulting with an ethics official. Because working as part of one's official duties with a family member raises concerns about loss of impartiality and/or conflicts of interest, employees should consult with their own ethics officials or the Office of General Counsel/Ethics in advance.

Case Studies

Yours, Mine, or Ours

You are assigned the task of completing a work product that was started by another EPA employee in a different office a few years ago. The other employee had designed an approach, researched and compiled information, and developed a rough draft, but was reassigned to more urgent projects and never completed the work product. You are told to revise the draft. However, you soon realize the draft needs more, and you essentially re-write the entire document. You remove the other employee's name from the author list because you completely reorganized the document, the other employee apparently doesn't care about authorship because he never finished the project, and after all, we are "one EPA." Is this consistent with best practices?

No. The previous employee made a substantial intellectual contribution (criterion #1), wrote critical intellectual content (criterion #2), and may be willing to help you finalize the work product if given an opportunity (criterion #3). Substantially revising someone else's work does not discount the significance of the original contribution. You should at least contact the previous employee to reach consensus on the issue of authorship for the final work product.

Taking Stock

You inherit stock worth \$26,000 in a company that manufactures a particular chemical. There are lots of other companies that manufacture this same chemical. You're not sure what to do with the stock, so you just ignore it while working hard on a research paper about the toxicological effects of that same chemical in drinking water. Is this a problem?

Yes. Even if there are other companies that manufacture this same chemical, your ownership interest is greater than the regulatory de minimis level. You cannot own more than \$25,000 in any particular entity and still work on matters of general applicability, which is what this example describes.

Can We Renegotiate?

At the start of a project, all of the team members agree on authorship order, with the project leader as primary author. Just as the project begins, the project leader is promoted and can no longer lead the day-to-day operation of the project, so she assigns one of the team members as the new project leader. Expecting to assume the role of primary author, the new project leader begins discussing a new authorship order. However, the branch chief says the existing authorship order will remain. Is this consistent with best practices?

It depends. Authorship order does not need to change simply because the status of an author has changed. However, a change in authorship order may be appropriate if an author's responsibilities change. With a promotion to a more "senior" position and reduced day-to-day project responsibilities, the new branch chief may want to suggest taking the role of "senior" author and be listed last, with the new project leader taking the role (and responsibilities) of primary author and listed first.

Scientific Integrity at U.S. EPA

Safeguarding science to protect human health and the environment

How to Report a Scientific Integrity Allegation

Formal scientific integrity allegations may be reported to the Scientific Integrity Official, any Deputy Scientific Integrity Official or to the Office of Inspector General. Allegations may come from outside or inside the Agency.

- Allegations that concern waste, fraud, abuse or other criminal violations should be reported to the Office of Inspector General.
- Allegations that concern reprisal should be reported to the Office of Inspector General or the Office of Special Counsel.
- Allegations that concern a financial conflict of interest or other ethics issues involving federal employees should be referred to the appropriate Deputy Ethics Official or Office of General Counsel/Ethics, or the Human Subjects Research Review Official, as appropriate.

Allegations can also be reported to the Scientific Integrity Official without revealing the identity of the person making the allegation. While there is no formal process for resolving these "informal" allegations, the Scientific Integrity Official is still interested in obtaining information about these allegations and can take some steps to help resolve them. When a formal allegation is resolved, the Scientific Integrity Official is responsible for preparing a summary and recommendations for corrective actions to safeguard the relevant science and will provide follow-up to ensure that the scientific recommendations are carried out appropriately. In addition, the resolved allegations are summarized in EPA's Scientific Integrity Annual Report and on the internet in a way that protects the identities of the parties involved.

Scientific Integrity Committee

The Scientific Integrity Committee provides oversight for the implementation of the Scientific Integrity Policy. Led by the Scientific Integrity Official, it is comprised of the Deputy Scientific Integrity Officials, who are senior agency officials from each Region and Office. A list of committee members and their contact information can be found on our website.

Report fraud, waste, or abuse to the Office of Inspector General:

E-mail: OIG_Hotline@epa.gov

Phone: 1-888-546-8740

Fax: 202-566-2599

Online: <http://www.epa.gov/oig/hotline.htm>

Write:

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