What is authorship, and what should it be? A survey of prominent guidelines for determining authorship in scientific publications

Article · January 2009

CITATIONS
28

READS
17

2 authors, including:

Jason W Osborne
Clemson University
91 PUBLICATIONS **3,910** CITATIONS

SEE PROFILE

Practical Assessment, Research & Evaluation

A peer-reviewed electronic journal.

Volume 14, Number 15, July 2009 ISSN 1531-7714

What is authorship, and what should it be? A survey of prominent guidelines for determining authorship in scientific publications.

Jason W. Osborne and Abigail Holland
North Carolina State University

Before the mid 20th century most scientific writing was solely authored (Claxton, 2005; Greene, 2007) and thus it is only relatively recently, as science has grown more complex, that the ethical and procedural issues around authorship have arisen. Fields as diverse as medicine (International Committee of Medical Journal Editors, 2008), mathematics (e.g., American Statistical Association, 1999), the physical sciences (e.g., American Chemical Society, 2006), and the social sciences (e.g., American Psychological Association, 2002) have, in recent years, wrestled with what constitutes authorship and how to eliminate problematic practices such as honorary authorship and ghost authorship (e.g., Anonymous, 2004; Claxton, 2005; Manton & English, 2008). As authorship is the coin of the realm in academia (Louis, Holdsworth, Anderson, & Campbell, 2008), it is an ethical issue of singular importance. The goal of this paper is to review prominent and diverse guidelines concerning scientific authorship and to attempt to synthesize existing guidelines into recommendations that represent ethical practices for ensuring credit where (and only where) credit is due.

Scientific authorship was much simpler in the days of Einstein, Newton, Dewey, and James. Authorship was specifically traceable to individuals. As science has grown more complex, joint- or multiply- authored journal articles have increased dramatically, and what constitutes authorship has become more of an issue (Syrett & Rudner, 1996). For example, in the physical and biomedical sciences, an article published in the New England Journal of Medicine in 1993 that reported on the results of an international randomized clinical trial was published with over 900 authors, and a physics article that reported on the Large Hadron Collider was published with almost 3000 authors. Indeed, most fields have seen movement toward multiple authors for scholarly work (Endersby, 1996; Manton & English, 2007; Oberlander & Spencer, 2006).

And while seemingly impossibly large numbers of authors on a single paper raises one set of questions, seemingly impossibly productive individuals raise other questions about the nature of authorship. Claxton (2005) reported that over the course of ten years, twenty authors in one particular field were identified as having each published an average of 32 papers or more per year (which is equivalent to publishing a paper on average every 11.3 days).

These two extremes raise important questions as to what really should count as authorship, and whether authorship might be assigned where it is not due. Surveys find, for example, that 10% of grant recipients from the National Institutes of Health admitted to inappropriately assigning authorship credit (Martinson, Anderson, & de Vries, 2005). Similarly, a survey of non-first authors in the "basic" and medical sciences revealed that 26% admitted to not contributing substantially to the paper (Shapiro, Wenger, & Shapiro, 1994), and in the business literature 35% of authors

surveyed reported assigning authorship to someone who had done little or no work (Manton & English, 2008). A more invisible problem may be the failure to assign authorship where it is due. For example, students are in a vulnerable position when working on a research project with faculty members and are at risk for exploitation (e.g., not being acknowledged or assigned authorship for work done on the research project; Digiusto, 1994; Lawrence, 2002; Oberlander & Spencer, 2006; Sandler & Russell, 2005).

A final problem in the age of multi-authored studies is author order. There are few clear guidelines for establishing authorship order, particularly when members of the authorship team are of different status and power (e.g., faculty and students; Fine & Kurdel, 1993). Although first authorship is often perceived as more prestigious or important than last author in some disciplines, other disciplines have adopted alphabetical authorship as the predominant method of dealing with this issue, but even this can vary from journal to journal (Endersby, 1996) and can disadvantage researchers with last names near the end of the alphabet.

Anecdotally, many students and faculty admit being or having been confused or frustrated in attempting to determine authorship for one or more papers. Because there is little standardization in practice as to what should constitute authorship on a scientific paper, and while much has been written on what constitutes (or should constitute) authorship, across many different disciplines and in many different countries, it remains a source of stress and contention within the ranks of the academy. Reinforcing this fact is Wilcox's (1998) report that the most commonly reported complaint category to Harvard's Ombuds Office for the Medical, Public Health, and Dental Schools was authorship practices, often from junior faculty, postdoctoral associates, and students.

In an attempt to address these issues, many prominent organizations (e.g., the International Committee of Medical Journal Editors, the American Psychological Association) have issued guidelines intended to define what authorship constitutes and how it should be assigned. Yet we have discovered many colleagues and friends are unaware of these guidelines. Further, there is great variety in the depth and specificity of the guidelines available to different fields. Thus, in this paper we attempted to distill, from a survey of a broad selection of authorship guidelines from diverse disciplines and geographical regions, a summary of essential elements of authorship with a goal of providing colleagues across disciplines objective guidelines for determining authorship and make recommendations on best practices in dealing with this often thorny issue.

WHAT DIMENSIONS DO AUTHORSHIP GUIDELINES DEAL WITH?

It is interesting to note the varying scope and specificity of the guidelines across organizations and disciplines. Details of each guideline are presented in tabular format in Appendix A and summarized in Table 1. In reading through all these guidelines, ten themes emerged:

1. *Authorship*- what should constitute authorship
2. *Authorship credit*- what should *not* be considered when considering authorship (e.g., administrative authority over researcher, procuring funding)
3. *Student authorship*- some statement about protection of student rights relating to authorship, often relating to course papers or theses or dissertations
4. *Recognizing contributors*- a statement concerning how to acknowledge significant contributions to the project that do not rise to the level of authorship
5. *Agreement of contributors*- some statement relating to communication amongst colleagues regarding authorship- often involving a statement that authors should agree to be listed as an author and /or that all listed authors have agreed to the order of authorship
6. *Plagiarism*- a statement regarding ethical responsibilities to avoid plagiarism
7. *Seniority*- a statement acknowledging that senior/ more powerful researchers have a responsibility to protect junior members of the team from abuse relating to authorship
8. *Authorship policy*- a statement that academic departments should develop and disseminate clear authorship policies to faculty
9. *Review/approval of manuscript*– a statement suggesting that all coauthors should have reviewed and approved of either the entire work or the portion of the work they were responsible for.

Table 1: Differing conceptions of authorship

Organization	Authorship	Authorship Credit	Student Authorship	Recognizing Contributors	Agreement of Contributors	Plagiarism	Seniority	Departmental Authorship Policy	Review/ Approval of manuscript	Authorship Order	N
American Chemical Society	X	X		X	X				X		**5**
American Counseling Association	X		X	X	X	X				X	**6**
American Educational Research Association	X	X	X	X	X	X	X			X	**8**
American Physical Society	X	X		X		X			X		**5**
American Psychological Association	X	X	X	X		X					**5**
American Sociological Association	X	X	X		X	X				X	**6**
American Statistical Association	X	X				X	X		X	X	**6**
British Sociological Association	X	X	X	X	X		X	X	X	X	**9**
International Committee of Medical Journal Editors	X	X		X	X				X		**5**
National Academy of Science	X	X		X	X				X		**5**
National Institute of Health	X			X	X				X	X	**5**
Society for Neuroscience	X	X		X	X	X			X	X	**7**
TOTAL	**12**	**10**	**5**	**10**	**9**	**7**	**3**	**1**	**8**	**7**	

10. *Authorship order*- some statement or guideline concerning how to determine authorship order

Quantitatively, guidelines from various organizations dealt with between five and nine of these ten issues. The most-commonly dealt with issues were, not surprisingly, authorship, authorship credit, and recognizing contributors. The least-commonly dealt with issues were seniority and the suggestion of having a clear and disseminated departmental policy on authorship.

The above-mentioned guidelines all addressed what should, and should not, constitute authorship in varying levels of specificity, as Table 1 indicates. Each guideline agreed that authorship should be limited to those who have substantially contributed to the work and who have a shared responsibility for the results. The problem,

traditionally, has been defining a "substantial contribution." Table 2 summarizes various guidelines' assertions about what authorship is, and is not. It seems that in this world of increasingly complex projects, a "substantial contribution" could include some combination of one or more of the following:

a) conception or design,

b) data collection and processing,

c) analysis and interpretation of the data, and

d) writing substantial sections of the paper.

While the importance of defining authorship may seem obvious, the prevalence of ghost authorship or honorary authorship points to a problematic breach between authorship guidelines and authorship practice. Therefore it is imperative that what constitutes an author is not only clearly defined, but also followed in practice.

Once it is clear that authorship is limited to those who substantially contribute in some combination of the ways listed above, and after those individuals are identified, the next step is deciding authorship order, which can be a thorny topic that may include the challenge of getting a substantial number of individuals to agree to a rank-ordering of the magnitude of their respective contributions. Few of us in the Academy are trained in how to deal with this sort of discussion and negotiation, which may lead to many avoiding it where possible at the expense of following best practices in authorship.

Finally, authors need to address the issue of how to acknowledge those whose role was a limited contribution. Ten out of the twelve guidelines reviewed addressed these issues. In order to help limit ghost or honorary authorship practices, it is important to make clear that institutional position, acquisition of funding, general supervision, and clerical or mechanical contributions do not constitute a substantial contribution worthy of authorship. Those who have contributed in ways that do not merit authorship should be appropriately acknowledged in either a footnote or the 'Acknowledgements' section.

In order to resolve any confusion or disputes surrounding authorship credit, nine of the reviewed guidelines addressed the importance of the research group jointly deciding on who will receive authorship and contributor credit. We agree that there cannot be too much communication on the topic, ideally *as early as possible* in the project. We further agree with British Sociological Association (BSA) guidelines that recommended listing all authors, in order, on each draft of every paper to limit confusion or false expectations and provide opportunity to resolve conflicts as early as possible. Eight of the reviewed guidelines also noted that all of the authors should approve the final draft before publication.

Perhaps the best safeguard against ghost and honorary authorship is including more detailed guidelines addressing student authorship, authorship policy, and issues of seniority. Less than half of the guidelines reviewed specifically addressed issues of student authorship, and only three discussed the related issue of seniority. Only the social science guidelines included information about student authorship, and they simply noted that students should be listed as the first author on any multi-authored article based on their thesis or dissertation. Looking more broadly at institutional hierarchy, three guidelines made a point to note the responsibility of senior team members. The American Statistical Association (ASA) clearly stated that statistics practitioners with greater prestige, power, or status have a duty to guard the professional freedom and responsibility of more subordinate statistical practitioners and the BSA suggested that more senior members give more junior colleagues opportunities to be first author when appropriate. Only the BSA addressed authorship policy suggesting that departments integrate authorship policy into staff manuals and make sure that new (and existing) staff are aware of them. The best way to establish proper authorship practices is to not only create clear guidelines, but to also ensure that all members in the academic department or laboratory have access to them. In addition, faculty should regularly discuss authorship issues with students working for them and authorship expectations should be addressed in the beginning stages of their research.

RECOMMENDATIONS FOR BEST PRACTICES IN AUTHORSHIP

In sum, best practices in authorship hinge upon communication amongst research team members, particularly with lower-status members (such as junior faculty or students). Although it might be an uncomfortable discussion initially, we have found on our research teams that the more the topic is discussed, the fewer problems we seem to encounter. We encourage researchers to have ongoing conversations about authorship from the moment a team is assembled. The Principal Investigator for the team is responsible for

Table 2. Overview of authorship

Organization	Authorship	Authorship Credit
American Chemical Society	The co-authors of a paper should be all those persons who have made significant scientific contributions to the work reported and who share responsibility and accountability for the results.	An administrative relationship to the investigation does not of itself qualify a person for co-authorship (but occasionally it may be appropriate to acknowledge major administrative assistance).
American Counseling Association	When conducting and reporting research, counselors …give full credit to those to whom credit is due.	
American Educational Research Association	All those, regardless of status, who have made substantive creative contribution to the generation of an intellectual product are entitled to be listed as authors of that product.	Clerical or mechanical contributions to an intellectual product are not grounds for ascribing authorship. Authorship and first authorship are not warranted by legal or contractual responsibility for or authority over the project or process that generates an intellectual product.
American Physical Society	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.	All collaborators share some degree of responsibility for any paper they coauthor. Some coauthors have responsibility for the entire paper as an accurate, verifiable report of the research. Coauthors who make specific, limited contributions to a paper are responsible for their contributions but may have only limited responsibility for other results.
American Psychological Association	Psychologists take responsibility and credit, including authorship, only for work they have actually performed or to which they have substantially contributed	Principal authorship and other publication credits accurately reflect the relative scientific or professional contributions of the individuals involved, regardless of their relative status. Mere possession of an institutional position, such as department chair, does not justify authorship credit.
American Sociological Association	Sociologists take responsibility and credit, including authorship credit, only for work they have actually performed or to which they have contributed.	Sociologists ensure that principal authorship and other publication credits are based on the relative scientific or professional contributions of the individuals involved, regardless of their status.
American Statistical Association	Maintain personal responsibility for all work bearing your name; avoid undertaking work or coauthoring publications for which you would not want to acknowledge responsibility.	Conversely, accept (or insist upon) appropriate authorship or acknowledgment for professional statistical contributions to research and the resulting publications or testimony.
British Sociological Association	Everyone who is listed as an author should have made a substantial direct academic contribution to at least two of the four main components of a typical scientific project or paper; a) conception or design, b) data collection and processing, c) analysis and interpretation of the data, and d) writing substantial sections of the paper. Authorship should be reserved for those, and only those, who have made significant intellectual contribution to the research.	Participation solely in the acquisition of funding or general supervision of the research group is not sufficient for authorship. Honorary authorship is not acceptable

Table 2 (continued). Overview of authorship

Organization	Authorship	Authorship Credit
International Committee of Medical Journal Editors	Authorship credit should be based on substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data. All persons designated as authors should qualify for authorship, and all those who qualify should be listed.	Acquisition of funding, collection of data, or general supervision of the research group alone does not constitute authorship.
National Academy of Science	Authorship should be limited to those who have contributed substantially to the work.	All collaborators share some degree of responsibility for any paper they coauthor. Some coauthors have responsibility for the entire paper as an accurate, verifiable report of the research. Coauthors who make specific, limited contributions to a paper are responsible for their contributions but may have only limited responsibility for other results.
National Institute of Health	For each individual the privilege of authorship should be based on a significant contribution to the conceptualization, design, execution, and/or interpretation of the research study.	
Society for Neuroscience	It is properly assumed that all authors have had a significant role in the creation of a manuscript that bears their names …. The Society for Neuroscience believes that authorship must be reserved for individuals who have made a significant contribution to the conception and design or the analysis and interpretation of data.	Although researchers are strongly encouraged to share materials such as reagents, animals, and tissues (see 1.8), the provision of such materials in and of itself does not constitute sufficient grounds for inclusion as an author.

beginning the discussion, and is also responsible for creating an environment where junior team members feel empowered to make an argument for authorship if they feel deserving. We hope that having objective guidelines, as we present below, will facilitate those discussions.

Authorship. As several guidelines indicate, authorship means playing a fundamental role in the creation of the product to be published. As Syrett and Rudner (1996) indicated over a decade ago (and as the BSA guidelines clearly state) there are different, critical parts of a research project. Depending on a discipline, that can involve having a substantial intellectual contribution to the conceptualization and design (including instrumentation, process, or materials development), data collection, data analysis, and creation of the manuscript. It involves owning a stake in the product, where those listed as author understand the final product, can defend and explain the final product, and endorse the final product. Individuals who do not have intellectual ownership of the final product (or a substantial part of the final product) are probably candidates for acknowledgment, rather than authorship. In essence, authorship can be operationalized as *sine qua non* for the paper or project, indicating a fundamental element (or elements) of the whole. Furthermore, all authors should review all drafts of manuscripts for accuracy/fidelity and should indicate agreement before a draft is moved forward to publication. Finally, all authors should be consulted in terms of author order, which varies in importance across disciplines.

Authorship credit and recognition of non-authorship contributions. Some guidelines suggested that certain roles that had traditionally (in some disciplines) earned individuals authorship (e.g., being in administrative charge of a research group or department chair, procuring funding for a project but otherwise not being involved in the project) should *not* be considered for authorship. We would suggest other roles as well that deserve acknowledgment but not

authorship: reviewing a manuscript, editing a manuscript, doing the clerical or manual labor of gathering data (exceptional circumstances can alter this), cleaning data, providing resources (e.g., reagents or basic processes involved in research that were not specifically developed for the project at hand), basic hardware/instrumentation maintenance and management (hardware/instrumentation development specifically for the project at hand may qualify for authorship, however). In this instance, as with all guidelines, communication amongst team members is essential, and ethical judgments on the part of the senior team members are critical. For those who contributed to the project but whose contributions do not rise to the level of authorship, acknowledgment of their contributions should be made in the manuscript.

Student authorship. It is clear there are different norms for the role of the student (undergraduate, graduate, or post-doctoral) in research teams across disciplines. Students are valuable and important parts of research teams, but historically have often been viewed as cheap labor rather than as part of an intellectual mentorship model. Students, being low-power, are also subject to abuse when it comes to authorship. We hope this is changing. To be clear, most guidelines who deal with this issue endorse the student as first author on publications derived from their theses or dissertations. However, on other research projects, students (and junior faculty) should be invited to share authorship where their contribution meets the standards set out above. Because of the power disparity between students and other research team members, it is incumbent upon the senior researchers to ensure equitable practices with regards to students and low power team members.

Authorship order. There have traditionally been different norms in different research labs regulating author order. There is no way to objectively formulate guidelines for who should be listed first, second, etc., but authorship order should always be determined solely by magnitude of contribution to the project (rather than by status or power within the research group, except where specific guidelines already exist for determining author order, such as policies of alphabetical authorship order that some journals have). Senior team members should lead conversations amongst authors to determine the magnitude of individual contribution to the project, and that should inform author order. Again, senior members need to be aware of power/status differentials within the team, and create an environment where junior team members (especially students) feel empowered to contribute to this discussion.

Plagiarism. Obviously, plagiarism is never something that can be condoned. It is not technically related to issues around authorship except when one individual claims authorship for another's work. Most research institutions have ombudsmen or processes in place to help people who feel they have been victims of plagiarism. Journals and organizations should continue educating their members/contributors about what constitutes plagiarism and how to avoid it.

Institutional authorship policy. We encourage research institutions to do more to support faculty, research staff, and students in dealing with authorship issues. Most institutions have some infrastructure in place that could support faculty and staff in this manner, and we encourage them to view this as yet one more dimension of compliance with ethical standards that should be the subject of ongoing discussion within every department on every campus. Professional development related to authorship issues could prevent abuse of junior members of research teams and prevent inadvertent academic dishonesty and conflict amongst researchers. Institutions should publicly disseminate authorship guidelines and include discussions concerning these issues for incoming faculty and students.

DISCUSSION AND CONCLUSION

In the age of ever-increasing productivity expectations for faculty members' promotion and tenure decisions, some may view violating authorship guidelines by awarding authorship to undeserving individuals as a "victimless crime." But awarding tenure or promotion based on work an individual did not do is problematic. For example, it is a form of academic dishonesty, it misrepresents an individual's productivity, it can lead to undeserved outcomes, and it could be a form of abuse of power if administrators or higher-power individuals use their authority to encourage others to name them as authors undeservedly. Conversely, violating authorship guidelines by not awarding authorship to deserving team members can have substantial consequences for their careers as well, as their true productivity is misrepresented. Neither situation should be tolerated.

In the end, it is difficult to be more specific or objective in guidelines for authorship as each project, team, and discipline is unique in subtle ways. The

guidelines we synthesized and summarized are a good starting point for research teams to begin a discussion, and it is in the process of discussing the issue that the important decisions will be made. We hope this overview of different views of authorship will help facilitate these discussions toward more productive ends.

REFERENCES

Anonymous (2004). Authorship without authorization. *Nature Materials, 3*(11), 743.

American Chemical Society. (2006). Ethical Guidelines to Publication of Chemical Research, http://pubs.acs.org/userimages/ContentEditor/1218054468605/ethics.pdf, retrieved May 19, 2009.

American Psychological Association. (2002). *Ethical principles of psychologists and code of conduct.* http://www.apa.org/ethics/code2002.html. Retrieved May 15, 2009.

American Statistical Association. (1999). Ethical guidelines for statistical practice. http://www.amstat.org/about/ethicalguidelines.cfm. Retrieved May 15, 2009.

Claxton, L. D. (2005). Scientific authorship: Part 2. History, recurring issues, practices, and guidelines. *Mutation Research/Reviews in Mutation Research, 589*(1), 31-45.

Digiusto, E. (1994). Equity in authorship: A strategy for assigning credit when publishing. *Social Science & Medicine, 38*(1), 55-58.

Editors, International Committee of Medical Journal Editors (2008). Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Writing and Editing for Biomedical Publication. http://www.icmje.org/. Retrieved May 19, 2009.

Endersby, J. W. (1996). Collaborative Research in the Social Sciences: Multiple Authorship and Publication Credit. *Social Science Quarterly (University of Texas Press), 77*(2), 375-392.

Fine, M. A., & Kurdel, L. A. (1993). Reflections on determining authorship credit and authorship order on faculty-student collaborations. *American Psychologist, 48*(11), 1141.

Greene, M. (2007). The demise of the lone author. *Nature, 450*(7173), 1165-1165.

Lawrence, P. A. (2002). Rank injustice. *Nature, 415*(6874), 835.

Louis, K. S., Holdsworth, J. M., Anderson, M. S., & Campbell, E. G. (2008). Everyday Ethics in Research: Translating Authorship Guidelines into Practice in the Bench Sciences. *Journal of Higher Education, 79*(1), 88-112.

Manton, E. J., & English, D. E. (2007). The Trend Toward Multiple Authorship in Business Journals. *Journal of Education for Business, 82*(3), 164-168.

Manton, E. J., & English, D. E. (2008). An Empirical Study of Gift Authorships in Business Journals. *Journal of Education for Business, 83*(5), 283-287.

Martinson, B. C., Anderson, M. S., & de Vries, R. (2005). Scientists behaving badly. *Nature, 435*(7043), 737-738.

Oberlander, S. E., & Spencer, R. J. (2006). Graduate Students and the Culture of Authorship. *Ethics & Behavior, 16*(3), 217-232.

Sandler, J. C., & Russell, B. L. (2005). Faculty-Student Collaborations: Ethics and Satisfaction in Authorship Credit. *Ethics & Behavior, 15*(1), 65-80.

Shapiro, D. W., Wenger, N. S., & Shapiro, M. F. (1994). The contributions of authors to multiauthored biomedical research papers. *JAMA: The Journal Of The American Medical Association, 271*(6), 438-442.

Syrett, K. L., & Rudner, L. M. (1996). Authorship ethics. *Practical Assessment, Research & Evaluation, 5*(1).

Wilcox, L. J. (1998). Authorship: the coin of the realm, the source of complaints. *JAMA: The Journal Of The American Medical Association, 280*(3), 216-217.

Citation

Osborne, Jason W., and Holland, Abigail (2009). What is authorship, and what should it be? A survey of prominent guidelines for determining authorship in scientific publications. *Practical Assessment, Research & Evaluation*, 14(15). Available online: http://pareonline.net/getvn.asp?v=14&n=15.

Corresponding Author

Jason W. Osborne, Ph.D.
Curriculum and Instruction,
North Carolina State University
602 Poe Hall, Campus Box 7801
Raleigh NC 27695-7801

E-Mail: Jason_osborne [at] ncsu.edu

APPENDIX

Table A1. Sample of Prominent Organizations with Authorship Guidelines (in alphabetical order)

Organization	Link
American Chemical Society	http://pubs.acs.org/userimages/ContentEditor/1218054468605/ethics.pdf
American Counseling Association	http://www.counseling.org/Resources/CodeOfEthics/TP/Home/CT2.aspx
American Educational Research Association	http://www.aera.net/AboutAERA/Default.aspx?menu_id=90&id=175
American Physical Society	http://www.aps.org/policy/statements/02_2.cfm
American Psychological Association	http://www.apa.org/ethics/code2002.html
American Sociological Association	http://www.asanet.org/galleries/default-file/Code%20of%20Ethics.pdf
American Statistical Association	http://www.amstat.org/about/ethicalguidelines.cfm
British Sociological Association	http://www.popcouncil.org/frontiers/ScienceWriting/English/PDFS_English/2_doc.pdf
International Committee of Medical Journal Editors	http://www.icmje.org/
National Academy of Science	http://www.pnas.org/site/misc/iforc.shtml#ii
National Institute of Health	http://www1.od.nih.gov/oir/sourcebook/ethic-conduct/Conduct%20Research%206-11-07.pdf
Society for Neuroscience	http://www.sfn.org/index.aspx?pagename=responsibleConduct

Note: all guidelines retrieved via these URLs between May and June of 2009.

Table A2a. Some authorship policies of various professional organizations

	Authorship	Authorship Credit	Authorship Order	Recognizing Contributors	Agreement of Contributors
American Chemical Society	The co-authors of a paper should be all those persons who have made significant scientific contributions to the work reported and who share responsibility and accountability for the results.	An administrative relationship to the investigation does not of itself qualify a person for co-authorship (but occasionally it may be appropriate to acknowledge major administrative assistance).		Other contributions should be indicated in a footnote or an "Acknowledgments" section.	The author who submits a manuscript for publication accepts the responsibility of having included as co-authors all persons appropriate and none inappropriate.
American Counseling Association	When conducting and reporting research, counselors are familiar with and give recognition to previous work on the topic, observe copyright laws, and give full credit to those to whom credit is due.		The principal contributor is listed first and minor technical or professional contributions are acknowledged in notes or introductory statements.	Counselors give credit through joint authorship, acknowledgement, footnote statements, or other appropriate means to those who have contributed significantly to research of concept development in accordance with such contributions	Counselors who conduct joint research with colleagues or students/supervisees establish agreements in advance regarding allocation of publication credit, and types of acknowledgement that will be received.
American Educational Research Association	All those, regardless of status, who have made substantive creative contribution to the generation of an intellectual product are entitled to be listed as authors of that product.	Clerical or mechanical contributions to an intellectual product are not grounds for ascribing authorship. Authorship and first authorship are not warranted by legal or contractual responsibility for or authority over the project or process that generates an intellectual product.	First authorship and order of authorship should be the consequence of relative creative leadership and creative contribution.	The work of those who have contributed to the production of an intellectual product in ways short of these requirements for authorship should be appropriately acknowledged within the product.	Anyone listed as author must have given his/her consent to be so listed.

Table A2a (Continued). Some authorship policies of various professional organizations

	Authorship	Authorship Credit	Authorship Order	Recognizing Contributors	Agreement of Contributors
American Physical Society	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.	All collaborators share some degree of responsibility for any paper they coauthor. Some coauthors have responsibility for the entire paper as an accurate, verifiable report of the research. Coauthors who make specific, limited contributions to a paper are responsible for their contributions but may have only limited responsibility for other results.		Other individuals who have contributed to the study should be acknowledged, but not identified as authors.	
American Psychological Association	Psychologists take responsibility and credit, including authorship, only for work they have actually performed or to which they have substantially contributed	Principal authorship and other publication credits accurately reflect the relative scientific or professional contributions of the individuals involved, regardless of their relative status. Mere possession of an institutional position, such as department chair, does not justify authorship credit.		Minor contributions to the research or to the writing for publications are acknowledged appropriately, such as in footnotes or in an introductory statement.	
American Sociological Association	Sociologists take responsibility and credit, including authorship credit, only for work they have actually performed or to which they have contributed.	Sociologists ensure that principal authorship and other publication credits are based on the relative scientific or professional contributions of the individuals involved, regardless of their status.	In claiming or determining the ordering of authorship, sociologists seek to reflect accurately the contributions of main participants in the research and writing process.		In cases of multiple authorship, sociologists confer with all other authors prior to submitting work for publication and establish mutually acceptable agreements regarding submission.

Table A2a (Continued). Some authorship policies of various professional organizations

	Authorship	Authorship Credit	Authorship Order	Recognizing Contributors	Agreement of Contributors
American Statistical Association	Maintain personal responsibility for all work bearing your name; avoid undertaking work or coauthoring publications for which you would not want to acknowledge responsibility.	Conversely, accept (or insist upon) appropriate authorship or acknowledgment for professional statistical contributions to research and the resulting publications or testimony.	Make clear the basis for authorship order, if determined on grounds other than intellectual contribution. Preferably, authorship order in statistical publications should be by degree of intellectual contribution to the study and material to be published, to the extent that such ordering can feasibly be determined. When some other rule of authorship order is used in a statistical publication, the rule should be disclosed in a footnote or endnote.		
British Sociological Association	Everyone who is listed as an author should have made a substantial direct academic contribution to at least two of the four main components of a typical scientific project or paper; a) conception or design, b) data collection and processing, c) analysis and interpretation of the data, and d) writing substantial sections of the paper	Authorship should be reserved for those, and only those, who have made significant intellectual contribution to the research. Participation solely in the acquisition of funding or general supervision of the research group is not sufficient for authorship. Honorary authorship is not acceptable	The person who has made the major contribution to the paper and/or taken the lead in writing is entitled to be the first author. Those who have made a major contribution to analysis or writing are entitled to follow the first author immediately. All others who fulfill the criteria for authorship should complete the list in alphabetical order of their surnames.	All those who make a substantial contribution to a paper without fulfilling the criteria for authorship should be acknowledged, usually in an acknowledgement section specifying their contributions.	There should be agreement on which papers will be written jointly and which will be single authored, with an agreed acknowledgement give to contributors. Early drafts of papers should include authorship and other credits to help resolve any future disputes.

Table A2a (Continued). Some authorship policies of various professional organizations

	Authorship	Authorship Credit	Authorship Order	Recognizing Contributors	Agreement of Contributors
International Committee of Medical Journal Editors	Authorship credit should be based on substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data. All persons designated as authors should qualify for authorship, and all those who qualify should be listed.	Acquisition of funding, collection of data, or general supervision of the research group alone does not constitute authorship.		All contributors who do not meet the criteria for authorship should be listed in an acknowledgements section.	The group should jointly make decisions about contributors/ authors before submitting the manuscript for publication. The corresponding author/ guarantor should be prepared to explain the presence and order of these individuals.
National Academy of Science	Authorship should be limited to those who have contributed substantially to the work.	All collaborators share some degree of responsibility for any paper they coauthor. Some coauthors have responsibility for the entire paper as an accurate, verifiable report of the research. Coauthors who make specific, limited contributions to a paper are responsible for their contributions but may have only limited responsibility for other results.		Authors must indicate their specific contributions to the published work. This information will be published as a footnote to the paper. An author may list more than one contribution, and more than one author may have contributed to the same aspect of the work.	The corresponding author must have obtained permission from all authors for the submission of each version of the paper and for any change in authorship.
National Institute of Health	For each individual the privilege of authorship should be based on a significant contribution to the conceptualization, design, execution, and/or interpretation of the research study.		The corresponding author should be considered the primary author (but is not necessarily the first author), with the additional responsibilities of coordinating the completion and submission of the work, satisfying pertinent rules of submission, and coordinating responses of the group to inquiries of challenges.	Individuals who do not meet these criteria but who have assisted the research by their encouragement and advice or by providing space, financial support, reagents, occasional analyses or patient material should be acknowledged in the text but not be authors.	It is expected, however, that each research group and Laboratory or Branch will freely discuss and resolve questions of authorship, including the order of authors, before and during the course of a study.

Table A2a (Continued). Some authorship policies of various professional organizations

	Authorship	Authorship Credit	Authorship Order	Recognizing Contributors	Agreement of Contributors
Society for Neuroscience	It is properly assumed that all authors have had a significant role in the creation of a manuscript that bears their names. Therefore, the list of authors on an article serves multiple purposes; it indicates who is responsible for the work and to whom questions regarding the work should be addressed. Moreover, the credit implied by authorship is often used as a measure of scientists' productivity in evaluating them for employment, promotions, grants, and prizes.	The Society for Neuroscience believes that authorship must be reserved for individuals who have made a significant contribution to the conception and design or the analysis and interpretation of data. Although researchers are strongly encouraged to share materials such as reagents, animals, and tissues (see 1.8), the provision of such materials in and of itself does not constitute sufficient grounds for inclusion as an author.	In multi-authored papers, the significance of the order in which authors are listed varies widely according to common practice in the field or to the policy established by the publisher and the journal and thus cannot reasonably be stipulated in these Guidelines. However, it is usual in neuroscience and allied fields for authors to be listed in descending order of their contribution to the paper, with the exception that the senior author is often listed last.	A footnote or the "Acknowledgements " section of a paper should be used to indicate intellectual, technical, or other contributions that do not merit authorship but are nonetheless noteworthy. Individuals should be informed before the publication of any such acknowledgements and thereby given the opportunity to decline the offer.	Once the list and order of authors has been established, the list and order of authors should not be altered without permission of all living authors. (Exceptions to this rule shall be limited to the demonstration of misconduct on the part of an author or failure to fulfill authorship obligations.)

Table A2b. More authorship policies of various professional organizations

	Plagarism	Seniority	Authorship Policy	Review/ Approval	Student Authorship
American Chemical Society				The submitting author should have sent each living co-author a draft copy of the manuscript and have obtained the co-author's assent to co-authorship of it.	
American Counseling Association	Counselors do not plagiarize, that is, they do not present another person's work as their own work.				For articles that are substantially based on students' course papers, projects, dissertations or theses, and on which students have been the primary contributors, they are listed as principal authors.
American Educational Research Association	Acknowledgement of other work significantly relied on in the development of an intellectual product is required. However, so long as such work is not plagiarized or otherwise inappropriately used, such reliance is not ground for authorship or ownership.	It is improper to use positions of authority to appropriate the work of others or claim credit for it. In hierarchical relationships, educational researchers should take care to ensure that those in subordinate positions receive fair and appropriate authorship credit.			Theses and dissertations are special cases in which authorship is not determined strictly by the criteria elaborated in these standards. Authorship in the publication of work arising from theses and dissertations is determined by creative intellectual contributions as in other cases.

Table A2b (continued). More authorship policies of various professional organizations

	Plagarism	Seniority	Authorship Policy	Review/ Approval	Student Authorship
American Physical Society	Plagiarism constitutes unethical scientific behavior and is never acceptable. Proper acknowledgement of the work of others used in a research project must always be given. Further, it is the obligation of each author to provide prompt retractions or corrections of errors in published works.			Every coauthor should have the opportunity to review the manuscript before its submission. All coauthors have an obligation to provide prompt retractions or correction of errors in published works. Any individual unwilling or unable to accept appropriate responsibility for a paper should not be a coauthor.	
American Psychological Association	Psychologists do not present portions of another's work or data as their own, even if the other work or data source is cited occasionally.				Except under exceptional circumstances, a student is listed as principal author on any multiple-authored article that is substantially based on the student's doctoral dissertation. Faculty advisors discuss publication credit with students as early as feasible and throughout the research and publication process as appropriate.
American Sociological Association	Sociologists provide acknowledgment of and reference to the use of others' work, even if the work is not quoted verbatim or paraphrased, and they do not present others' work as their own whether it is published, unpublished, or electronically available.				A student is usually listed as principal author on any multiple-authored publication that substantially derives from the student's dissertation or thesis.

Table A2b (continued). More authorship policies of various professional organizations

	Plagarism	Seniority	Authorship Policy	Review/ Approval	Student Authorship
American Statistical Association	Deplore all types of professional misconduct, not just plagiarism and data fabrication or falsification. Misconduct more broadly includes all professional dishonesty, by commission or omission, and, within the realm of professional activities and expression, all harmful disrespect for people, unauthorized use of their intellectual and physical property, and unjustified detraction from their reputations.	Recognize that within organizations and within professions using statistical methods generally, statistics practitioners with greater prestige, power, or status have a responsibility to protect the professional freedom and responsibility of more subordinate statistical practitioners who comply with these guidelines.		Do not include statistical practitioners in authorship or acknowledge their contributions to projects or publications without their explicit permission.	
British Sociological Association		More senior BSA members are encouraged to give more junior colleagues opportunities to be first author when appropriate.	Departments should have an authorship policy included in staff manuals and make sure that new (and existing) staff are aware of them.	Everyone who is listed as an author should have critically reviewed successive drafts of the paper and should approve the final version	Students should normally be the first author on any multi-authored article based on their thesis or dissertation.
International Committee of Medical Journal Editors				All authors should have drafted the article or revised it critically for important intellectual content and given final approval of the version to be published.	
National Academy of Science				While not all coauthors may be familiar with all aspects of the research presented in their paper, all collaborators should have in place an appropriate process for reviewing the accuracy of the reported results	

Table A2b (continued). More authorship policies of various professional organizations

	Plagarism	Seniority	Authorship Policy	Review/ Approval	Student Authorship
National Institute of Health				All authors are responsible for drafting or substantively reviewing or revising the research article, and a willingness to assume responsibility for the study.	
Society for Neuroscience	Plagiarism undermines the system through which authors receive credit for their work, and in doing so may inhibit authors from sharing their data and ideas in a timely fashion, activities essential to the progress of science. In addition to denying scholarly credit, plagiarism also has potentially important legal implications for commercial development and patenting.			All authors should have participated in drafting the article or reviewing and/or revising it for intellectual content and approved the final version of the manuscript.	