



Interacting with the Scientific Community – Peer Review Process

Watch this video as an introduction to this section of the module:

<https://www.youtube.com/watch?v=rOCQZ7QnoN0>

Peer Review is an important process in scientific research in which a researcher's work is first judged by a group of his/her peers before it can be shared with the scientific community at large. You can think of Peer Review as the screening process for the spread of sound research contributions across the scientific community. This process provides several important benefits to both the researcher and the scientific community.

Researcher Benefits:

1. The researcher receives constructive feedback on the strengths and weaknesses of their research findings.
2. The researcher can improve his/her research approach by adopting suggestions from the reviewers.
3. Once this process is complete, the researcher is able to share his/her scientific discoveries with the world.
4. Serving as a reviewer helps to keep researchers current with the state-of-the-art in their respective field.

Scientific Community Benefits:

1. The scientific community gains confidence in the research articles published, which eventually form the basis for new and exciting research.
2. The scientific community grows as research findings are widely disseminated and new collaborations and connections are made to related fields.
3. Scientific publications validate or invalidate intellectual property claims and the eventual translation of research discoveries into devices, systems, or products that will improve the lives of the public.

Peer Review is comprised of the following basic process. In each step there is an exchange of information that strengthens that end result.

1. A scientific discovery is made in the field or in the lab.
2. Students, faculty, and others review the current literature to ensure the novelty of this discovery.
3. The research team drafts a research article and selects a scientific journal based on the target audience.
4. The draft article is submitted to an online editorial system for the selected journal.
5. Members of the journal editorial board select a set of reviewers (referees) to give constructive feedback and a recommendation for inclusion of the article in a published volume of the journal. The number of reviewers can vary by journal, but there is generally more than one reviewer and general feedback from a member of the editorial board.
6. The selected reviewers will read and provide constructive feedback to the authors regarding the draft article. This initial review process may take several weeks or several months.
7. The reviewer comments, along with a recommendation for acceptance or rejection for publication, will be sent to the authors.
8. If accepted for publication, there are several options: 1) Accepted without revision, 2) Accepted with minor revision, and 3) Accepted with major revision. Being accepted without revision is quite rare, so receiving an acceptance with minor or major revisions should be seen as a favorable response.
9. If rejected for publication, this does not mean that the submitted research is not valid or valuable. The provided feedback may indicate additional studies that need to be conducted, or the need to find a journal with a scope more amenable to the type of work submitted. A declination should not discourage the authors from tuning and resubmitting the research article for publication at a later date.



Research Experience and Mentoring

Scientific Community Handout 1: Peer Review

10. Revision of the article (if necessary) is usually requested within a particular time period. These revisions may include grammar, information presentation, clarification of details, or requests for additional studies. Authors may choose to address suggested revisions in any way that they deem necessary, including declining to make the suggested changes, although this should be a justifiable decision detailed in a narrative to the reviewers. Other changes can be made at the discretion of the authors as well.
11. A revised version of the article can then be resubmitted for a second round of review by the reviewers. Ideally (but not always), this set of reviewers will be the same as those that reviewed the article initially.
12. Reviewers and the editorial board provide feedback regarding the revised article and offer a second recommendation for acceptance/rejection.
13. This process iterates until a resolution is reached (i.e. full acceptance or rejection). The author is notified, and in the case of an acceptance, formatting requirements are communicated by the editorial board.
14. Once accepted, many articles are now available online, prior to printing of the physical publication. These articles can be searched for with online research database tools and cited in subsequent work as important contributions to the body of knowledge in a particular field.