



Maths matters

Best current practices for journals (endorsed by the General Assembly of the International Mathematical Union on 16 August 2010)

International Mathematical Union*

In 2004, the Committee on Electronic Information and Communication (CEIC) produced a document listing various recommendations relating to the changing environment of peer-reviewed journals and digital distribution of research in its various stages. Now, in 2010, we wish to return to that document and offer more details on how journals can best serve the mathematical community. Specifically, this document focuses on how a good mathematics journal should be organised and managed.

Journals remain one of the most important tools of mathematical research and communication. A good journal adds value to the manuscripts submitted to it by providing:

quality control: The peer-review process evaluates and aims, inasmuch as possible, to certify the correctness, importance, novelty, and clarity of a paper.

improving content and presentation: Journal referees, editors, and publishers improve the quality of published manuscripts and provide feedback to their authors.

dissemination: Journals help to categorise the literature and help authors, readers, librarians, historians, and others to find relevant works.

archiving: Journals ensure that papers remain accessible. They help establish priority and certify the historical record. In addition, they provide tags such as volume numbers and document identifiers that can be cited and linked to.

On the other hand, a poorly run journal has a detrimental effect on the mathematical literature. The proliferation of poorly run mathematical journals is becoming an increasing burden to the community. Some of these have been created for dubious reasons, such as the hoped-for prestige of the editors or institutions involved, or with no clear purpose beyond financial incentives. Even journals created with the best of intentions may fail to provide the services above because of inadequate planning or stewardship.

In this document, we draw together some best practices for journal management based on the experience of existing journals. Certain fundamental principles apply to all. Primary among these are transparency and integrity.

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By *transparency* we mean that all the journal's stakeholders — readers, authors, referees, editors, publishers, etc. — are fully aware of the decision processes that affect them.

Integrity of the publication process is paramount. It includes maintaining an objective review process focused on scientific quality, proper acknowledgement of sources, and a respect for confidentiality where required.

Professionalism is also important. This includes timely handling of manuscripts at each stage of the process, and continuity of management, scope, and vision as they evolve.

This document is necessarily based on currently available technology, and, while some practices are universal, others must be reformulated to adapt to new and unanticipated technological developments. The best practices and recommendations presented in the document will be periodically revisited and updated as circumstances require.

Rights and responsibilities

There are many ways to organise the decision-making processes of a journal. However the editors and publishers decide to implement the details, there are certain basic rights and responsibilities of the authors, referees, editors, and publishers that should be respected in all circumstances.

Authors

Authors who submit a manuscript to a journal have the right to a careful, timely and unbiased peer review overseen by the journal editors, who often seek the advice of referees. The level of detail of the review can vary greatly, but, following the principle of transparency, authors have a right to know in advance the processes by which their manuscript will be handled, and a right to be informed of the grounds for the acceptance or rejection of their manuscript, including normally being given access to any referee reports that have been sought. However, manuscripts that are deemed not to adhere to the journal's standards or scope can be quickly returned to the authors with a brief editorial justification.

Authors must abide by high standards of research integrity and good scholarship. It is the responsibility of authors to submit a well written, mathematically correct article, if necessary seeking advice if it is not written in their native language, to clearly describe any novel and non-trivial content, and to suitably acknowledge the contributions of others, including referees. Submission of a paper to a journal implies that it is not currently under consideration by any other journal, and that any substantial overlap with other published or submitted papers is duly acknowledged. In addition authors should be responsive to correspondence with the journal. Multiple authors should communicate fully, speak with one voice, and accept mutual responsibility in their communications with the journal. All authors are expected to have materially contributed to the paper, and to be familiar

with its contents. The ordering of authors' names is at the discretion of the journal and/or authors, although the standard practice in most mathematical papers is to list authors alphabetically.

Referees

Researchers who benefit from the literature and contribute to it as authors also have an obligation to participate in the peer review process, in particular by serving as referees in their areas of expertise. When doing so, they have a right to anonymity, unless this is clearly waived by the referee, or by the stated policies of the journal. While no one has an obligation to referee any particular paper, the decision to do so or not should be communicated in a timely fashion. Potential referees should disclose any circumstances which might compromise their ability to provide an unbiased review.

Once a referee has agreed to serve, that referee should adhere to the agreed schedule (typically including revisions) and inform the editor of unanticipated delays. Referees must act with integrity. They should familiarise themselves with the expectations of the journal and the review process, and do their best to implement them in an unbiased fashion. They should respect confidentiality, neither disclosing the fact that the paper has been submitted nor that they are refereeing it, nor disclosing any non-public content to others, nor using for their own purposes results that are not publicly available. Referees wishing to seek the opinions of colleagues on the submitted article should seek permission from the journal editors. Referees are expected to base their written assessment on publicly available works.

We have noticed a trend, perhaps reinforced by manuscript tracking software, for referees to communicate additional opinions to editors which are not meant for transmission to authors. This concerns us, since the principle of transparency implies that authors should be fully informed of the grounds for the decision on their work. Such confidential comments do not relieve the referee of the obligation to make an honest assessment of the qualities of the paper in the report that will be transmitted to the author. We believe that in best practice such comments should be used exceptionally, rather than as a general procedure.

The obligations of a referee are primarily as expert advisors to the editors of the journal; secondly, through the editors, to the mathematical public, where the obligation is the maintenance of standards in the mathematical literature; and thirdly to the authors. Although the opinion of referees on the correctness of a paper is normally sought, ultimate responsibility for correctness lies with the authors. Refereeing is also an opportunity to provide positive guidance to the author. Although a referee does not have an obligation to do this, it can be an extremely valuable contribution, particularly in the case of authors in the early stages of their career.

Editors and editorial boards

The editors and editorial boards bear the primary scientific responsibility for guiding a journal. Transparency requires that the journal have a clearly formulated statement of its vision and scope, and a detailed description of its submission, peer review, and publication processes, including the responsibilities of editors and referees. These should be publicly disseminated, and, in particular, all editors should both be aware of and in agreement with them. In many cases, the editorial board will take the primary role in formulating, monitoring, and updating these statements. The editorial board should also be familiar with and take an active interest in the publisher's pricing policies.

A primary responsibility of the editors is to implement the peer review process, ensuring its integrity and fairness. This is carried out by

- a wise choice of referee or referees, with sufficient expertise but avoiding conflicts of interest,
- communicating with authors, referees, managing editors, and publishers in a timely manner,
- ensuring that the process moves forward by following up on referees and appointing new ones when necessary, and
- arriving at decisions on objective grounds which are communicated to authors as discussed above.

Editors should ensure that papers are reviewed on purely scientific grounds, and that authors are not pressured to cite specific journals, papers, or books for non-scientific reasons. There should be clear and transparent procedures for handling submissions by editors which guarantee that the standards of the journal are maintained.

Some journals use a quick reject procedure in which editors may determine that a paper is unsuitable for the journal without sending it outside for review. In this case, the editor must ensure that his or her own decisions are made fairly and objectively. The decision whether to accept or reject a manuscript is a complex judgement, depending on the submitted manuscript, the extant literature, and the goals and standards of the journal. Different referees and editors may well come to different conclusions. Referees sometimes make mistakes, and it is important that appeals against rejection of an article are fairly handled.

As noted above, authors have the right to be informed of the grounds for the acceptance or rejection of their manuscript, including normally being given access to all referee reports. There may be exceptional circumstances when an editor can reasonably decide to exclude part of a report, for example if it contains libellous or insulting remarks, or certain kinds of sensitive information. Nonetheless, it is important that such editorial discretion is not used to suppress inconvenient comments, such as a recommendation to accept the paper when the editor's decision is to reject it.

Editors should be alert to unethical practices such as simultaneous submissions to different journals, plagiarism, and self-plagiarism, be prepared to impose appropriate sanctions (such as refusing to consider further submissions from an offending

author for a certain period), and cooperate with publishers in adopting procedures to eradicate such practices.

Publishers

For most journals, the editorial board does not itself oversee the production and business processes. These are usually carried out by a commercial publisher, a professional organisation, university, or other institution. The support publishers receive from authors, editors, and referees in the mathematical community carries with it responsibilities. Most important is a commitment to the mathematical literature and its dissemination. Publishers must also adhere to the principles of integrity, transparency, and timeliness. Detailed information concerning the journal, including editorial board members, journal vision and scope, submission and publication procedures, fees, page charges, subscription pricing, etc., must be made publicly available to all concerned parties.

Publishers should ensure that papers are widely accessible, affordable in all parts of the world, and permanently archived in a form that can be readily located, referenced, and (possibly after paying a reasonable fee) accessed. Sales arrangements should be flexible, allowing, for instance, the purchase of individual journals and articles. Alternative modes of financing the publication process, such as through author fees, submission fees, page charges, or combinations of these create significant ethical challenges. First, the opportunity to publish in a peer-reviewed venue should be available to all, subject to scientific merit, not the ability to pay via research grants, institutional support or other means. Therefore there should be methods to opt out of payment when needed. Second, payment in direct return for publication creates a potential conflict of interest with the peer review process. For this reason, any such journal requires clear, well defined, effective processes to insulate peer review and editorial decision-making from monetary considerations.

Accepted papers should be typeset, copyedited (if appropriate), and published online and/or in print in a timely manner. Publishers should establish and clearly communicate to potential authors their policies concerning copyright and authors' web posting. Publishers should track and publish the date of submission, final revised submission, if applicable, and date of publication (electronic and/or print) of published papers. Publishers should respond to and investigate allegations of plagiarism or other unethical behaviour connected with their journals, publish a clear and specific retraction in confirmed cases, and protect the rights of authors by seeking appropriate redress for plagiarism and unauthorised use of their work.

Recommendations

In this section, we append some more general recommendations for successful journal stewardship which are based on observed best practices among existing journals. These are presented to help editors and publishers launch successful new journals, as well as strengthen and improve existing journals. Not all are currently followed by even some of our most successful journals, and we are not presuming to second-guess the stewardship of well run journals.

The vision and processes of a journal are very important to its success, and we encourage journals to involve their editorial boards in addressing these issues. Communicating this vision to all involved with production of the journal will, in the long run, save a great deal of time and effort, avoid problems and misunderstanding, and contribute greatly to the success of the journal.

The maintenance of a careful, professional system for handling manuscripts throughout submission, refereeing, revision, acceptance or rejection, and publication requires careful thought and effort. A clear procedure for handling mistakes, errata, retractions, counterexamples, and updates should be established. We have observed a worrying increase in instances of plagiarism, and we encourage journals to consider instituting procedures for detecting, publicising, and appropriately dealing with plagiarism in submitted articles. Such procedures rely on editorial judgement, but may well be supported by automated systems, commercial or otherwise, and we encourage the development of such systems appropriate for use by journals.

The publisher and editorial board should determine the expected standards of exposition, including the languages of publication. In the case where the author is unable to meet these standards, they should decide how much, if any, editorial support or copyediting the journal will supply. There is clear value in well-written and -typeset papers, and editorial efforts by a journal are a significant contribution to the quality of the mathematical literature.

We believe that all the editors should be actively involved in the editorial processes of the journal, or, when this is not the case, that a designation such as ‘honorary editor’ should be used. In any case, editors should be informed of and agree to their responsibilities, the scope of the journal, and the processes used to evaluate submissions. Even the agreement to serve as an honorary editor is a public statement of support for the goals and running of the journal, and should be entered into thoughtfully. It is advisable to establish a clear term length for editors, and procedures for renewal. Information about the history of a journal, such as the make-up of the editorial boards over time, is an important part of the historical record, and publishers should endeavour to archive such information in a readily accessible form.

It is an editor’s responsibility to know the pricing policies of the publisher, and to take an active interest in them as regards the journal’s goals and the dissemination of scientific knowledge as widely as possible. Some of the very best mathematical journals operate without assessing page charges and with liberal policies for posting of articles in web repositories and on authors’ home pages, while maintaining reasonable subscription fees and flexible bundling arrangements. This is a standard to be striven towards. All such policies must be clearly spelled out by the publisher. See also previous CEIC recommendations on open access to the mathematical literature:

http://www.mathunion.org/ceic/Publications/Recommendations/6_call.shtml.

While some predict the imminent demise of journals, we hesitate to join that view. We recognise that there are many forces affecting how journals will be run in the future, and that innovations in publishing will lead to researchers interacting with

content in new ways. We hope with this document to support such evolution. If journals are run well, they will continue to play an important role in furthering mathematical research and communication for many years to come.

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References to other sites

CEIC Best Current Practices:

http://www.mathunion.org/ceic/Publications/Recommendations/3_best_practices.shtml.

Association for Computing Machinery (ACM) Rights & Responsibilities:

<http://www.acm.org/publications/policies/RightsResponsibilities>.

Committee on Publication Ethics (COPE): <http://publicationethics.org/>.

US Government Office of Research Integrity: <http://ori.dhhs.gov/>.

American Mathematical Society (AMS) Ethical Guidelines:

<http://www.ams.org/secretary/ethics.html>.

Society for Industrial and Applied Mathematics (SIAM) Authorial Integrity in Scientific Publication: <http://www.siam.org/journals/plagiarism.php>.