

Student Guide for The Journal of Advanced Undergraduate Laboratory Investigations

Welcome to JAUPLI, the Journal of Advanced Undergraduate Laboratory Investigations. This program allows you, the advanced laboratory student, to get a taste of what it is like to submit a paper for publication in an academic journal and gain some experience with the academic peer-review process.

What is peer review?

If you are not familiar with this process, peer-review is the process by which academic journals assess the quality of research papers before they are published. In this process, journal editors first assess if the paper meets the criteria for publication in their journal (e.g., they might evaluate things like “Is the paper on a topic relevant to the readership of the journal?”). Once they have established that the paper is within the scope of the journal and satisfies other basic criteria for publication, the paper is sent out to other scientists who work in the same field, who are asked to evaluate the paper.

The reviewers (or referees) read through the paper and evaluate its quality, originality, scientific accuracy, and potential impact on the field. Once they have read the paper, referees write a letter back to the journal editor with their assessment of the paper in which they can address any technical issues that they see with the paper or ask for the authors clarify unclear points. The emphasis of these reports is to comment on the technical correctness and clarity of the paper and to evaluate its potential impact, more than to highlight grammatical or spelling errors. Along with their more detailed comments, referees are asked to make a recommendation about whether the paper is suitable for publication in the journal, usually by picking one of the following categories:

- Accept as is (The paper meets publication criteria as is)
- Accept with Revisions (The paper will meet publication criteria after relatively minor revisions)
- Revise and Resubmit (The paper shows promise of meeting publication criteria after revision)
- Reject (Shows too little promise to merit continued consideration or is clearly unsuitable for publication in the journal by virtue either of being fundamentally incorrect or other irreconcilable issues.)

Once the editor has received reports from two or three referees, they must then make the determination on how to proceed. Technically speaking, the referees are only making recommendations and the editor has the final say on if the paper should be considered for publication. In cases where referees provide conflicting recommendations, the editor may send the paper out to be reviewed by another referee.

If the paper receives mostly negative feedback (Reject), the editor will usually inform the authors that their paper has been rejected and the authors must find another journal to publish their results in. This is not necessarily a reflection on the quality of the science, but could be an opinion on how well the work fits within the journal's scope (e.g., your paper on superconductivity might get rejected if you submit it to a psychology journal). If the paper receives mostly positive feedback (Accept as is or Accept with Revisions), the editor will typically send the author the referee reports and ask them to address the minor corrections that the referees have recommended. Once the authors have

corrected the issues, they can submit the final version of the manuscript back to the editor for publication. The editor will then pass the manuscript to the production department who will do some basic copyediting and ensure that the paper is formatted correctly for publication. Once they have done this, the publication department will send the authors a sample of what the final published paper will look like (called a proof) to the author so they can give it a final proofread before it is published.

If the feedback falls more in the Revise and Resubmit category, the editor will send the referee reports to the author and ask them to address the referees concerns. The author can choose to address the referees' concerns or to withdraw the manuscript from consideration and submit their paper to a different journal. If they choose the former, the authors must, in addition to revising their paper and potentially doing more experiments/calculations to make a better case for their claims, write a report to the editor explaining how they have addressed the referees concerns or if they disagree with them, make a case for why the referees are incorrect. The editor then forwards the revised manuscript along with the response to the referees back to the referees, who write a second report evaluating the new manuscript and making a new recommendation on whether the manuscript should be published. Once they have received this second round of feedback, the editor makes a final determination on whether the paper should be published and either passes the revised manuscript to the production team or informs the author of their rejection.

How does JAUPLI work?

JAUPLI gives you the opportunity to experience the first half of the peer review process. You will submit a paper that you have written about one of your advanced laboratory experiments. Your manuscript should be a finished version of the paper that you would feel comfortable publishing to a wide audience, not some intermediate draft. The JAUPLI editorial staff will receive your paper and send it out for peer-review to a Physics student at another institution, who will write a referee report evaluating the quality of your work. The JAUPLI editorial staff will then send you this report, which you will have to address in putting together the revised paper that you will submit to your professor. In return, you will be expected to read another student's manuscript and draft a referee report of your own. JAUPLI employs a double-blind peer review process meaning that the referees do not know the name or affiliation of the authors and the authors do not know the names or affiliations of the referees. Note that since JAUPLI is a "mock journal," your work will not actually be published, although future versions may change this.

Considerations in writing a manuscript for submission to JAUPLI
(with apologies to the editors of American Journal of Physics, from whom this was adapted.)

The *Journal of Advanced Undergraduate Laboratory Investigations B* (JAUPLI) "publishes" papers that will support, inform, and delight a diverse audience of undergraduate Physics students. It strives to present papers that present advanced laboratory experiments and their results in a carefully written and technically correct way that is accessible to most upper-division Physics students. Technical correctness is necessary, but it is not the only condition for acceptance. Clarity of exposition and potential interest to the readers are important considerations. It is the reader, not the author, who must receive the benefit of the doubt. To be "publishable" in JAUPLI, a manuscript must be written for, and also be useful, interesting, and accessible to students outside the author's home institution and who, while generally well-versed in undergraduate physics, might not be completely familiar with the subject of the manuscript.

Because it is expected that most readers of a particular article will not be specialists in the subject matter presented, the introductory paragraphs should carefully present the context of the experiment being discussed and provide the reader with adequate references in which they can find more detailed discussions of relevant background information. Importantly, these references should be accessible to the referees as outside readers. For example, a reference to a lab manual on how to use a particular lock-in amplifier at the author's home institution that is not publicly available would not be as useful to the reader as a manual from the lock-in's manufacturer that is available online or an article on lock-in amplifiers in the *American Journal of Physics*. Readers are also expected to be familiar with common laboratory equipment and techniques, so discussing how to connect a voltmeter with alligator clips to measure a voltage is not necessary, but specialized equipment and methodology should be discussed in sufficient detail to make it obvious why/how a particular tool or technique was used/works. The discussion of the experimental results should follow a logical, narrative thread that guides the reader through gathering and analysis of the data and provides support for the author's conclusions. This narrative should be supported with appropriate figures (graphs, photographs, etc.), tables, and equations that help advance/clarify the narrative thread.

Note that different instructors will likely have different requirements for their students' papers (e.g., some might require section headings, while others won't), so JAUPLI does not require any particular format for your paper. Rather referees will be asked to assess your paper for organization and how well it presents the material to its intended audience of upper division Physics students. This means that when you submit a paper to JAUPLI, it should be a finished product, which you would be comfortable having published for the whole world to see, and not just a rough draft. For more details on the evaluation criteria that the referees will use to assess your paper, please refer to the JAUPLI Referee's Rubric, which will be made available to you when you agree to review a paper, or at the institution specific referee rubric that is provided by your instructor.

Reviewing papers for JAUPLI

As part of the JAUPLI process, your instructor has "voluntold" you to review two papers from students at other institutions. As such, you will be receiving email from the JAUPLI editorial staff at some point in the coming weeks asking you to referee a paper or two. This email will include a link to the manuscript that you will be refereeing along with guide to help you in the review process. It will also give you a deadline by which your referee report should be submitted back to JAUPLI. **It is crucial that you stick to this deadline so that your referee report can be returned to the author and they can make corrections to their manuscript and turn in a revised manuscript to their instructor for grading before the end of the semester. Keep in mind that if the paper is on a topic that you are not familiar with, you might have to read up on the subject to evaluate the paper, so give yourself plenty of time to complete your report.**

You will receive more information about writing reviews when you receive a request from the journal.

Creating a JAUPLI account

In order to submit a paper to JAUPLI, you will first need to create an account on our website. To do this:

1. Go to the [JAUPLI website](#) and click on the “register” link in the top left of the page to create a new account. This will prompt you to fill out some basic information like your name and institution. **When registering for a new account, make sure that you are using your personal email address associated with your college or university.**
2. Be sure to check the box “Yes, I would like to be contacted with requests to review submissions to this journal”
3. Once you have completed creating your account, you should receive a confirmation email within a few minutes to verify that you are using a valid email address.

Your account will only remain active until the end of the current semester at which point, we will delete it to ensure long-term privacy of your schoolwork and personal information.

How to submit a manuscript to JAUPLI

To submit a paper for peer review through JAUPLI, please do the following:

1. **First, make sure that the text of your document does not contain any identifying information (your name or institution), so that the review process can be truly double blind. Papers containing identifying information will be returned to you, which will delay the review process and potentially lead you to having to rush to get your final draft done.**
2. Save your paper as a PDF, Microsoft Word document, or RTF. The filename should be LastName_School.pdf. E.g., if you go to Georgia Tech and your name is George P. Burdell, your filename might be something like Burdell_GT.pdf. We will rename this file when we receive it and assign it a manuscript ID number before sending it out for review.
3. Go to the JAUPLI [website](#) and log into your account, and go to the submissions link in the “about” menu. Click “make new submissions”
4. Go through the checklist, and check each box to ensure your paper is ready for submission.
5. On the next page, upload the file that contains your paper.
6. On the next page, enter the title, abstract and all authors on the paper.
7. Finally, confirm and finish your submission.
8. Within a few minutes, you should receive a confirmation email verifying that your submission is complete and assigning your paper a manuscript number, which will be used by the editorial team and the referees to refer to your manuscript in future communications. If you don’t receive this within 24 hours of submitting your paper, please let your instructor know. **This email will also provide a link where you can check on the status of your paper, so make sure to save it.**

What happens after you receive your referee report?

Once we receive a report about your paper from a referee, we will forward the report to you and your instructor, along with the referee's recommendation on whether the paper should be accepted for publication. At this point, you should read the feedback that the referee provided and think about how you can use it to improve the final draft of your paper that you will submit to your instructor for grading. Note that you may disagree with a referee's assessment and decide not to include a change that they recommend but you make sure that you are able to defend your position. In a full publication cycle, you would have to provide these arguments to the editor in a response letter that you submit with your updated manuscript. In the case of JAUPLI, though, you will only submit your revised paper to your instructor. Your instructor will let you know if there are any additional steps that you need to take to address the referee's feedback (e.g., you may be asked to write a letter back to the editor addressing the referee's report).

Closing Remarks

We hope that you find your participation in JAUPLI a rewarding and enriching experience. Publication is a central part of scientific research and something that all research physicists are expected to do. We hope that this experience will be useful to you as you progress in your academic careers.

We leave you with some comments from students who have submitted to JAUPLI in the past:

- "When I was reading through the paper I reviewed, it wasn't until I noticed that certain ways that they wrote their paper were a little confusing or lacking information about important topics that I noticed I did the same thing."
- "Spending time trying to write a well written paper was a great way [to] test my writing skills. Getting a review of the article I submitted was a good review for my own skills"
- "I learned some interesting things from reading the paper I reviewed, plus I learned how to write formal journal [papers] a whole lot better"

Best of luck with the rest of the semester,

The JAUPLI Editorial Team

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David Altman, Willamette University
Will Roach, University of Lynchburg
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