



Writing and peer review for advanced laboratories: a proposal

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DO YOU TEACH ADVANCED LABORATORY?

Consider trying the Journal of Advanced Undergraduate Physics Laboratory Investigations (JAUPLI)

Abstract

There are a number of significant goals and issues associated with the teaching of advanced laboratories. Faculty teaching advanced laboratories often experience a feeling of isolation. For students, the laboratory is a critical tool for synthesis of the physics knowledge which can be challenging to achieve. Our proposed solution to these seemingly dissimilar issues is a new paradigm for the advanced laboratory that encourages the students to write scientifically, includes calibrated peer reviews, and crosses school boundaries to create a shared mission for faculty. When students write a paper, they submit the article to the journal for review. A reviewer may be a faculty member or another student at another institution. Some of the articles students receive will be calibration articles written by faculty, some will be by students at other institutions. Through this process faculty and students will form communities and students will engage in writing about physics.

Common Problems

- Advanced Laboratory Faculty often work in isolation
- Students only are exposed to the investigations available at their institution
- Students' have a myopic view of writing, writing for the wrong audience (their instructor who clearly knows everything) and provide a telling which does not afford the synthesis of true scientific writing.



For JAUPLI Methodology

- Double Blind Reviews
- Students write a paper for submission, it is distributed for review to one faculty member, and several student reviewers.
- Use of calibrated peer reviews: students are provided with papers to review, one of which is a calibration review written by faculty.
- Goal is to have papers accepted for publication in JAUPLI
- Reviewers are provided with rubrics to help guide them through the review.
- The writing AND the reviews are themselves assessed.

Benefits

- Provide a community through the shared activity of the web journal
- Provide a community to which the students in Advanced Laboratory classes are active contributors
- Expose the students to the professional practice of scientific writing and reviewing
- Have value added to writing in the advanced laboratory work.
- Improve students' scientific writing and understanding of physics
- Have a formal outlet for student writing.
- Provide a rigorous mechanism for assessing student writing and synthesis skills
- No Increase in Faculty workload

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