

Letter from the Editor-in-Chief

What makes a good research or review article? Almost universally, a component of the answer will be clear communication. But upon delving deeper it quickly becomes apparent that what clear scientific writing looks like depends on the audience reading it. *Proceedings of Manitoba's Undergraduate Science and Engineering Research* (PMUSER) has a broad audience: those interested in the work of Manitoba's undergraduate science and engineering students. The key to reaching this diverse audience is in providing a broad enough context for the article to be approachable, a task accomplished with a carefully structured 'Introduction'. Equally important is the 'Conclusion', providing a clear communication of the relevance of the research/review and a summarizing or emphasizing of its key findings. Clear communication adds fundamental value to a scientific manuscript, regardless of the volume, novelty, or indeed even success of the research or results obtained. A third aspect of clear communication in scientific writing is selecting and condensing what is often a great deal of data into a set of clear and concise figures and tables that best convey the research narrative.

Scientific communication, however, does not end with the preparation of the manuscript itself. It also extends through the review process, for both author and reviewer. The best manuscripts explain the research and its rationale well enough that the reviewers, those familiar with the particular field, are not left questioning the relevance, methods, or conclusions of the work. The reviewers themselves have a responsibility to the authors to ensure their remarks unambiguously address the shortcomings of the manuscript so as to ensure its improvement prior to publication. And lastly, in responding to the reviewers' comments, authors must provide a clear response to the editors as to which suggestions were incorporated and which, with justification, were not. These responses facilitate an honest back-and-forth between author, reviewer, and editor to ensure a transparent review process and ultimately a high quality publication.

The ability to communicate complex concepts clearly, and to constructively critique colleagues and receive such feedback, is not only a skill relevant to academia or research. It is also relevant much more broadly to any career, requiring critical reflection of ones' own work, and of others', for the purposes of learning and of improving the end product.

Therefore, with the goals of PMUSER in mind, goals of

understanding research in a broader context and of fostering growth beyond the classroom, it is with excitement that a prize for 'Best Paper' is being awarded for the first time with the publication of this volume. Congratulations to Sarah Warrack! Her manuscript submission excelled in meeting the above criteria. J. Challis, a member of the editorial team, was a co-author of this submission, and therefore was excluded from all discussion, deliberation, and ultimately decisions around the award recipient. Formally, the award decision was made by two members of the PMUSER editorial team and two external colleagues who each independently reviewed the original manuscripts, the reviewer comments, and the authors' revised manuscripts with the accompanying response letters and provided recommendations.

As a journal, communication not only matters, it is our duty and our product. We have a responsibility to ensure that the manuscripts we publish are able to reflect the quality of research done by Manitoba's undergraduate students and that it is accessible to as many people as possible. Thus, we are proud to unveil a more polished and professional layout in this volume that has been two years in the making. Additionally, acquiring International Standard Serial Numbers (ISSN) for PMUSER and publishing Discrete Object Identifiers (DOIs) for every article are further steps in becoming fully open access. We continue to work on expanding awareness of PMUSER among everyone who may find it a valuable, informative, or rewarding experience to read, review, or submit research and review papers in our journal.

With these achievements of 2017, I look forward to reaching the broader authorship of Manitoba's science and engineering undergraduates with a diversity of research and review submissions for Volume 4! Stay tuned as we look to advance Manitoba's *Frontiers of Undergraduate Research*.

Thanks for reading,



Matthew J. D. Doering
PMUSER Editor-in-Chief

