Implementation of Peer Review and the Revision Process for Scientific Writing in an Introductory Honors Physics Course

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Abstract
Students enrolled in the honors physics course during the Spring 2015 semester completed a term writing assignment that included multiple components such as team writing, peer review, and substantial revision. The writing assignment was centered around one laboratory activity investigating the response of charged particles to applied electric and magnetic fields. Students completed the laboratory procedure, outline, draft and revision to the paper in teams of two or three students but anonymously peer reviewed the draft paper of another team individually. The final grade for the assignment was determined by the scores on each component while emphasizing the effort of the peer review and revisions.

Assignment Learning Objectives
• Improve student’s ability to REVISE their own writing by providing constructive feedback and emphasis on the revision process
• Introduce the peer review process and develop peer review skills
• Important professional development skill
• Exposure to collaborative writing in teams
• Work to seamlessly incorporate contributions of multiple individuals
• Encourage more editing and revising
• Develop a deeper understanding of the relationship between charged particles and electromagnetic fields through clear written explanation
• Try out Canvas on-line features for submitting, grading group assignments

Assignment Components
• Laboratory Activity (Graded Separately): Charged particles in electric and magnetic fields
• Outline (20%): Two pages, each paragraph, equation, and figure identified and summarized in bulleted format
• Initial Draft (20%): 1000 to 1300 words, complete with claims supported by laboratory data and references
• Peer Review (20%): Anonymously review another team’s draft and provide constructive feedback on how to improve the paper
• Final Paper (40%): Final product with revisions explicitly identified in appendix (response to reviewer comments)

Assignment Timeline

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<tr>
<th>Task</th>
<th>Team Abstract</th>
<th>Due</th>
<th>Abstract</th>
<th>Lab Procedure Completed</th>
<th>Paper Outline</th>
<th>Spring Break</th>
<th>Paper Draft Due</th>
<th>Peer Review Due</th>
<th>Final Paper &amp; Revision Due</th>
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Assignment Reflection
All of the learning objectives that were successfully addressed in this course include:
1. Reorganize the structural scheme of the final paper to a more traditional format for better flow of the presentation
2. Incorporate response to peer review (appendix) in final handout
3. Provide a ‘model’ paper from a different laboratory procedure for students to reference
4. Develop handouts for each component of the assignment (outline, draft, final paper) to further describe expectations
5. Increase total weight of assignment toward final course grade ~10%