Canadian Association of Physicists
Association canadienne des physiciens et physiciennes

Contribution ID: **347** Type: **Poster Competition (Undergraduate Student) / Compétition affiches (Étudiant(e) du 1er cycle)**

# (U*) POS-A4 – Students' Preferences and Participation in Introductory Physics Courses in an Online Environment

*Wednesday 9 June 2021 13:51 (2 minutes)*

Introductory physics courses are required at McMaster for students in a pure physics stream, engineering stream, or life sciences stream. The background preparation of these students, as well as their attitudes towards the course, can vary greatly. There lies huge importance in identifying topics and aspects of introductory physics courses that students enjoy and find challenging as a key method to improving their overall understanding and experience. Additionally, with the recent switch to fully online teaching methods, the way in which students approach their lecture content and participate in classroom activities has also changed. Examining the online lecture attendance in comparison to in-person lectures is a useful way to see what aspects of an online model are beneficial to carry forward once on-campus classes return.

In this study, a survey was distributed to students in three streams of introductory physics courses, with an open-ended question to identify what they enjoy and find most challenging in physics. Students were able to answer with specific topics covered in the course or general aspects of physics (problem-solving, math, etc.). Interestingly, students enjoyed real-life applications of physics the most, while finding the math and problem-solving aspects of the course most challenging. Kinematics was the most liked topic, while the most challenging topic varied depending on the choice of stream. A similar survey will be distributed to students after they complete a second introductory physics course, allowing this question to be assessed again, as well as their comfort with mathematics, and the topics they deem most relevant to their field of study. By examining these additional questions, we hope to clarify why students from different science disciplines prefer specific topics, and whether students continue to struggle with the same topics as they progress into upper-year physics courses.

These results can be used as a tool in identifying areas of introductory physics courses that should be improved to help with students' overall understanding and experience.

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**Session Classification:** W-POS-A #1-4 Poster session (DPE) / Session d'affiches (DEP)

**Track Classification:** Physics Education / Enseignement de la physique (DPE-DEP)