

## Axiomatic Systems as an Alternative to Teach Physics

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**Abstract :** In the last few years, students from higher education have difficulties in grasping mathematical concepts which support physical matters, especially those in the first years of this education. Classical Physics teaching turns to be complex when students are not able to make use of mathematical tools which lead to the conceptual structure of Physics. When derivation and integration rules are not used or developed in parallel with other disciplines, the physical meaning that we attempt to convey turns to be complicated. Due to this fact, it could be of great use to see the Classical Mechanics from an axiomatic approach, where the correspondence rules give physical meaning, if we expect students to understand concepts clearly and accurately. Using the Minkowski point of view adapted to a two-dimensional space and time where vectors, matrices, and straight lines (worked from an affine space) give mathematical and physical rigorosity even when it is more abstract. An interesting option would be to develop the disciplinary contents from an axiomatic version which embraces the Classical Mechanics as a particular case of Relativistic Mechanics. The observation about the increase in the difficulties stated by students in the first years of education allows this idea to grow as a possible option to improve performance and understanding of the concepts of this subject.

**Keywords :** axioms, classical physics, physical concepts, relativity

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