

# A proposal for an Astronomy basic course for secondary school students

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**Abstract.** We present results from a long-term Astronomy foundation course taught to high school students at a private college in Alfenas-MG. This project began in 2014 through a partnership between the teaching group of Astronomy of UNIFAL-MG and the teacher of physics of the college. Each year about 40 students take part in the course, where we work on fundamental topics of Astronomy in a constructivist approach.

**Resumo.** Apresentamos resultados de um curso de longa duração de fundamentos de Astronomia ministrado para alunos do ensino médio de um colégio particular em Alfenas-MG. Este projeto teve início em 2014 através de uma parceria entre o grupo de ensino de Astronomia da UNIFAL-MG e a professora de Física do colégio. Por ano, cerca de 40 alunos participam do curso, onde trabalhamos tópicos fundamentais da Astronomia numa abordagem construtivista.

**Keywords.** Teaching Astronomy — Secondary school

## 1. Introduction

From childhood, we have conceptions about the universe around us. We seek to shape the things around us, to recognize patterns, and to use them for our own safety, searching tirelessly for answers. The goal is to use Astronomy to insert the teaching of the evolution of the ideas of Physics, providing a contextualized learning of the law of universal gravitation and the laws of Kepler.

## 2. Results

Fig. 2 show some students that participated in the annual course, all medalists of the Brazilian Astronomical and Astronautical Olympiad of the year 2016.

In 2016, three of the participants of the course (Andrade, Carolline, Marinho, Lucas & Brassi, Pedro; Fig. 1), were selected to participate in the Space Journey in Barra do Pirai - RJ, where they received an award for their rocket to reach the horizontal reach of 101.8 meters.

There has been growing participation over the years (Fig. 4). The interdisciplinary character of Astronomy instigates and favors meaningful learning by student parts, deconstructing any stigmas that might create a misconception of what science is.

There is significant progress over the years (Fig. 3), one can observe the annual achievement of medals from the Brazilian Astronomy and Astronautics Olympiad.

## 3. Conclusion

We observed that the students began to behave more skeptically, seeing science as a human construct, a more critical view of pseudo-sciences, understanding their inferences, above all, about the importance of using the scientific method for the development of science. In addition to contributing to the scientific training of students, the course has contributed to improve the performance of students in the discipline of Physics in high school. Add to this the increasing participation of these students in the Brazilian Astronomy and Astronautics Olympiad and also in the Brazilian Show Rockets.

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FIGURE 1. Space journey — Barra do Pirai / RJ (2016).

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FIGURE 2. Some participating students.

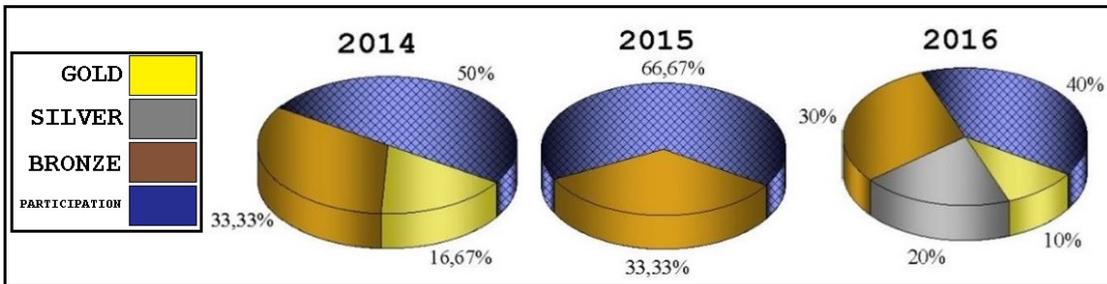


FIGURE 3. Annual medal win — Brazilian Astronomy and Astronautics Olympiad.

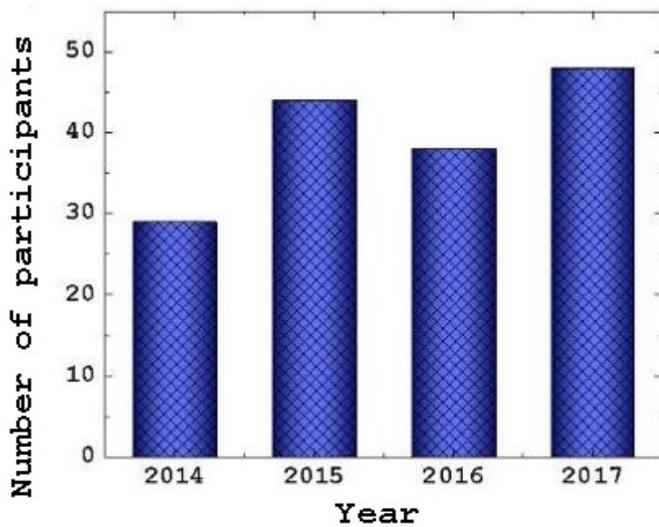


FIGURE 4. Annual shareholdings.