

## SP - (16125) - TRAINING STUDENTS TO MASTER THE MATHEMATICAL PREREQUISITES FOR A UNIVERSITY SCIENCE CURRICULUM

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### Short Abstract

*Most science courses at a university level require a prerequisite in mathematics without which students encounter serious difficulties. In order to support students who do not adequately master these concepts, we looked at the possibility of building a mathematics course that focuses on strengthening the prerequisites for the first year science courses at university.*

*This program was designed with three goals in mind: (i) to define the key skills which serve as a basis in mathematics and other scientific disciplines, especially in physics (ii) to identify the prior knowledge in mathematics which are the prerequisites for those skills (iii) to strengthen the level of mastery of each skill.*

*Four strategies were implemented: (i) working in an interdisciplinary team of science teachers to define the targeted skills and support students in their training, (ii) identifying the connections between those skills, (iii) setting up a training course with activities to strengthen assimilation of certain skills targeted by other disciplines as early as possible and (iiii) devoting a significant part of the program to prerequisites already seen in middle and high school but not mastered.*

*This study shows that to best achieve these goals, the sequencing of the content and teaching organisation differ from that of a classic refresher course in mathematics: it does not follow the traditional structural links between the prerequisites. In addition, devoting time to teaching mathematical prerequisites up to middle high school level appears essential.*