## Faculty of Sciences

## MAT1131 Linear Algebra

[45h+45h exercises] 8 credits

This course is taught in the 1st semester

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| **Teacher(s):** | Jean-Roger Roisin (coord.), Jean-Pierre Tignol |
| Language: | French |
| Level: | First cycle |

### Aims

This course is an introduction to the fundamentals of linear algebra. In this basic course, students in mathematics or physics are expected to develop the following methodological skills: fluency in the basic technical language, capacity for abstraction and for using algebraic formalism in relation with intuition, accuracy in expression and ability to use various techniques of proof. More specifically, the course focuses on topics related to the solution of systems of algebraic equations of the first degree and vector space transformations and aims to develop an intuition for these topics while pointing towards applications in several directions.

### Main themes

Recall of fundamental notions in mathematics :
numbers, sets, language; Matrix calculus and resolution of systems
of algebraic equations; Vector spaces and euclidean spaces; linear
maps and linear operators

### Content and teaching methods

Matrix calculus and systems of first order equations ;
vector spaces and linear maps, diagonalisation and eigen spaces

### Other credits in programs

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| **MATH11BA** | Première année de bachelier en sciences mathématiques | (8 credits) | Mandatory |
| **PHYS11BA** | Première année de bachelier en sciences physiques | (8 credits) | Mandatory |