
# MAT1122 Mathematical analysis 2

[30h+30h exercises] 5 credits

This course is taught in the 2nd semester

**Teacher(s):** Thierry De Pauw, Patrick Habets, Jean Mawhin (coord.)
Language: French
Level: First cycle

## Aims

This course aims at developing the following skills: mastery of the language, rigor in the analysis of a proposition, search for relevant examples, precision in the expression and understanding of the various methods of proofs.
More precisely, it deals with the mathematical aspects of the notions of continuity, convergence, derivative and integral. It aims at developing the basic methods of explicit resolution of differential equations and it offers an outlook towards fields of applications. This course constitue the second part of an introduction to differential and integral calculus for students in mathematics and physics.

## Main themes

Limits and continuity; partial and directional derivatives; open, closed and bounded subset of the real line; uniform continuity; classical theorems (Cauchy, Rolle); accumulation points and Cauchy convergence lemma; Lagrange theorem; contraction mapping theorem; implicit functions; extrema and constrained optimization problems; Taylor polynomials

## Other credits in programs

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| **MATH11BA** | Première année de bachelier en sciences mathématiques | (5 credits) | Mandatory |
| **PHYS11BA** | Première année de bachelier en sciences physiques | (5 credits) | Mandatory |