



## MATH2180 Numerical analysis II

[45h] 4.5 credits

This course is taught in the 1st and 2nd semester

**Teacher(s):** Alphonse Magnus  
**Language:** French  
**Level:** Second cycle

### Aims

Analysing the fundamental mathematics of the main modern methods (finished elements and differences) of numerical resolution of equations to partial derivatives.

### Main themes

Methods of finished elements to elliptic problems: variational formulations of limit problems, construction of spaces of finished element type, Sobolev spaces and generalized solutions, error estimations and convergence properties. Methods of finished differences to evolution problems: problems of initial conditions to constant coefficients and variable coefficients with two and three levels, relations between stability and convergence, applications to the energy method.

### Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Prerequisites: good formation in mathematics.

Evaluation: oral examination (2h30) at the end of the year.

Support: course notes are supplied each year. Files may be obtained on the web: <http://www.math.ucl.ac.be/~magnus/NUM2/>

### Other credits in programs

**MATH22/G**      Deuxième licence en sciences mathématiques      (4.5 credits)