

## Faculty of Biological, Agronomic and Environmental Engineering

### BIR1201 Integrated exercises in mathematics and computer science

[15h] 2 credits

This course is taught in the 2nd semester

**Teacher(s):** Patrick Bogaert, Philippe Sonnet, Marnik Vanclooster (coord.)  
**Language:** French  
**Level:** First cycle

#### Aims

To allow the students to integrate their mathematical knowledge to solve problems relevant for the area of biological, agronomical and environmental engineering. To use a reference computer language for numerical calculus.

#### Main themes

The learning process includes the following steps:

- 1) the formulation of the mathematical problem of a case study;
- 2) the proposal of a numerical solution of the problem;
- 3) the writing of a program implementing the numerical solution in a macro-language using an existing software
- 4) the writing of a report describing the solution of the problem.

This course is linked with the courses BIR 1200 'Mathématiques générales II', BIR 1202 'Informatique appliquée' and BIR 1203 'Probabilités et statistiques I'.

#### Content and teaching methods

To solve exercises of numerical analysis in a computer room. The students will program by means of an existing macro-language, a numerical procedure allowing to solve the mathematical problem of a few cases relevant for the area of biological, agronomical and environmental engineering. This course is linked with the courses BIR 1200 'Mathématiques générales II', BIR 1202 'Informatique appliquée' and BIR 1203 'Probabilités et statistiques I'.

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

Precursory courses : BIR 1200 'Mathématiques générales II', BIR 1202 'Informatique appliquée', BIR 1203 'Probabilités et statistiques I'

Supplemental courses : 'Probabilités et statistiques II', 'Introduction à l'analyse de systèmes'

Framing : Teaching team with assistants

Miscellaneous : Course given in the computer room with an emphasis on personal work.

#### Other credits in programs

<b>BIR12BA</b>	Deuxième année de bachelier en sciences de l'ingénieur, orientation bioingénieur	(2 credits)	Mandatory
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