

Due to the COVID-19 crisis, the information below is subject to change, in particular that concerning the teaching mode (presential, distance or in a comodal or hybrid format).

5 credits	45.0 h + 20.0 h	Q2
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Teacher(s)	Bieliavsky Pierre ;Robert Annie ;
Language :	French
Place of the course	Bruxelles Woluwe
Main themes	The course is intended for students with an elementary background in calculus as given in the basic course of physics in BAC1. It contains: -an introduction to linear algebra with emphasis on the computation of solutions to systems of linear equations, matrix algebra, eigenvalues, eigenvectors and diagonalization of matrices; -an introduction to the study of functions of several variables (partial derivatives, differentials, gradients, maxima and minima, Lagrange multipliers, multiple integrals) and systems of differential equations with a view on applications; -an introduction to analytical geometry, in particular to the equations and properties of straight lines, conics and quadrics; -a good deal of illustrations and applications to pharmacokinetics, chemical and enzymatic kinetics, genetics, statistics, thermodynamics
Aims	<p>The objective of this course is to introduce the students to the fundamental notions of linear algebra, calculus and analytical geometry in order to provide them with the basic mathematical tools essential for the biomedical sciences</p> <p>1</p> <p>-----</p> <p><i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i></p>
Evaluation methods	<p><b>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</b></p> <p>The evaluation consists in a written examen graded on 20 points: a theoretical part (10 points), exercises (6 points), pharmacocinetics and statistic (4 points).</p>
Teaching methods	<p><b>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</b></p> <p>Lectures and exercises sessions</p>
Content	<p>-Linear algebra : systems of linear algebraic equations, solution procedures by Gauss-Jordan elimination, matrix algebra, rank theory, inversion, eigenvalues, eigenvectors and diagonalization of matrices; -Complex numbers and periodic functions. Introduction to the theory of systems of ordinary differential equations -Applications to pharmacokinetics and statistics, thermodynamics.</p> <p>METHODS: Lectures and supervised practical works (in small groups) are organized weekly. The practical works, in close connexion with the lecture of the week, are not restricted to mere applications of recipes but require an active involvement of the students, who are encouraged to establish the link between theory and practice</p>
Bibliography	livre conseillé: J. Stewart, Analyse. Concepts et contextes, Volume 2, Fonctions de plusieurs variables
Other infos	PREREQUISITE : Background in mathematics as given in the course of physics (BAC 1).
Faculty or entity in charge	SBIM

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Aims
Bachelor in Biomedicine	<a href="#">SBIM1BA</a>	5		