


5 credits

30.0 h + 30.0 h

Q1

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|-----------------------------|---|
| Teacher(s)                  | Bieliavsky Pierre ;Hanert Emmanuel ;  |
| Language :                  | French  |
| Place of the course         | Louvain-la-Neuve  |
| Main themes                 | 1st part. Linear algebra: Linear spaces and linear maps, eigenvalues and eigenvectors, quadratic forms, euclidian spaces, orthogonal projections, least squares approximations. 2nd part. Multivariable calculus: Limits and continuity, derivatives, extrema of real functions, multiple integrals, introduction to curves and surfaces, curvilinear and surface integrals, theorems of Stokes and Gauss. 3rd part. Differential equations: Generalities and classification, linear equations of arbitrary order with constant coefficients, elements on partial differential equations. |
| Aims                        | <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>  |
| Content                     | This course details subjects that have been introduced in the course MATH1160 'Mathématiques générales I'. It is divided into three parts : linear algebra, differential equations and functions of several real variables. The theory is illustrated by practical exercices. This activity is coordinated with the course BIR 1201 'Exercices intégrés en mathématiques et informatique'.  |
| Bibliography                | - Syllabus ``Mathématiques Générales II ' par Pierre Bieliavsky (disponible en téléchargement sur icampus)<br>- Fiches d'exercices (disponible en téléchargement sur icampus)<br>-Deuxième volume du livre de référence « Analyse, concepts et contextes ' Fonctions de plusieurs variables» de James Steward, 3 <sup>ème</sup> édition, de boeck. Ce livre est disponible à la DUC.  |
| Faculty or entity in charge | AGRO  |

| <b>Programmes containing this learning unit (UE)</b> |                        |         |              |   |
|--|------------------------|---------|--------------|---|
| Program title  | Acronym                | Credits | Prerequisite | Aims  |
| Bachelor in Bioengineering                           | <a href="#">BIR1BA</a> | 5       |              |  |