

4.00 credits

30.0 h + 15.0 h

Q1

Teacher(s)	Lavendhomme Thierry ;
Language :	French
Place of the course	Bruxelles Saint-Louis
Learning outcomes	<p><b>At the end of this learning unit, the student is able to :</b></p> <p>For some years now, discrete Mathematics (that can be opposed to infinitesimal or “continuous” Mathematics introduced in secondary school), linked to the progress of computer science, have considerably grown in management science. In this first course, the aim is to introduce the different concepts, results and techniques of discrete Mathematics and to prove their importance, especially in management. But, beyond the contents of the course, the student will have been introduced to logical reasoning, to argumentation and/or to the precise demonstration of results, to the verbal and written expression of his knowledge. He will have learned to move from an intuitive understanding of concepts to their formal expression, which is essential at a certain level of abstraction or generalisation.</p>
Evaluation methods	<p>Written examination.</p> <p>It includes different kinds of questions:</p> <ul style="list-style-type: none"> <li>- short questions designed to verify the acquisition of techniques;</li> <li>- questions designed to verify the acquisition of the theory, the understanding of the concepts, the mastery of the technical language;</li> <li>- essay questions that allow to assess the synthesis, writing and structuring abilities, but also the depth of the understanding, the ability to set out arguments and the know-how when face with a new mathematical problem.</li> </ul> <p>The students who will have taken a sufficient number of weekly tests (at least 5 of the 7 proposed tests), will benefit from a continuous assessment: the 5 best tests out of the 7 will be retained and, only in the case where the continuous assessment mark is higher than the final examination mark, will count for 5 points out of 20 of the final mark.</p>
Teaching methods	<p>Lecture and tutorials.</p> <p>Tutorials: In order to increase the efficiency of the supervised exercises, the theme of each session will be announced in advance so that the students can prepare for it by carrying out the immediate computational applications.</p> <p>To encourage daily work, which greatly increases the success prospects, weekly tests will be held, based on previously defined material. These tests are optional. They suppose an initial detailed approach of the subject matter. However, these tests cannot be considered as representative of the questions that will be encountered at the final examination (which require several successive in depth examinations of the subject matter). These weekly tests are intended to allow the students to evaluate their knowledge of the subject matter.</p> <p>In order to encourage the students in this continuous work, these tests may intercede positively in their final examination (see assessment method).</p>
Content	<p>After a first chapter revising some results already studied in secondary school, the second chapter will focus on logic but also on notions of reasoning, demonstrations and algorithms (these will be illustrated by the reminders of the first chapter and will prepare for the transition to discrete Mathematics that will be developed in the following chapters).</p> <p>The following chapters will cover the concepts of enumeration, relations, recurrence and induction as well as an introduction to graphs and mathematical trees.</p>
Bibliography	<p>Livre de référence :</p> <p>Stewart J., Analyse, Concepts et contextes, Volume 1, Fonctions d'une variable, De Boeck.</p> <p>Références complémentaires (les années ne sont pas mentionnées car il y a parfois eu plusieurs versions, qui ne différaient que peu).</p> <ul style="list-style-type: none"> <li>- Lay D. C., Algèbre linéaire -- et applications, Pearson.</li> <li>- Stewart J., Analyse, Concepts et contextes, Volume 2, Fonctions de plusieurs variables, De Boeck.</li> <li>- Sydstaeter K. &amp; Hammond P., Mathématiques pour l'économie, Pearson,.</li> <li>- Lucas Th., Berlinger I. &amp; De Greef I., Initiation à la logique formelle - avec exercices corrigés</li> <li>- Freund M., Logique et Raisonnement, Ellipse.</li> </ul>

Other infos	The copies of the slides and a syllabus (that includes the definitions and main results but no developments seen in class) will be available. A syllabus of exercises will also be available.
Faculty or entity in charge	ESPB

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor : Business Engineering	<a href="#">INGB1BA</a>	4		
Bachelor : Business Engineering (French-English)	<a href="#">INAB1BA</a>	4		
Bachelor : Business Engineering (French-Dutch-English)	<a href="#">INTB1BA</a>	4		