

## APPLIED MATHEMATICS

Title of Study Programme and Code		Type (compulsory/optional)	Cycle	Year of study when the component is delivered (if applicable)
Transport Business 6531LX074		Compulsory	1 <sup>st</sup>	1 <sup>st</sup> year
Semester/trimester when the component is delivered		Number of ECTS credits allocated	Language of instruction	Mode of delivery (face-to-face/e-learning/...)
1 <sup>st</sup>		6 ECTS	English	
Learning outcomes			Study methods	Assessment methods
After completion of the study subject, a student should be able:			Interpretation of concepts; Analysis of the problem solution; Solution of the individual tasks; Group work.	Test No.1; Test No.2; Defence of the individual homework; Exam.
<b>LO 1</b>	To describe simple economic situations by functions, analyse properties of functions.			
<b>LO 2</b>	To apply linear equations, linear inequalities and their systems by defining and describing mathematically simple economic processes.			
<b>LO 3</b>	To apply linear algebra methods, solving simulation examples, described in specialty subjects.			
<b>LO 4</b>	To create a mathematical model of the experiment and calculate the probabilities of events.			
<b>LO 5</b>	To create a mathematical model for linear programming task in the field of transport and solve it graphically.			
<b>LO 6</b>	To predict and select the most efficient transport routes by using linear programming methods.			
<b>LO 7</b>	To optimize the production plan and maximize average production costs.			
<b>LO 8</b>	To apply correlation theory elements, specifying "strength" of random magnitudes relation.			
<b>LO 9</b>	To perform correctly statistical analysis and interpret the results.			
<b>LO 10</b>	To perform simple mathematical calculations in finance economy.			
Prerequisites				

**(these courses must be successfully completed prior to taking this particular course)**

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**Course content**

1. Fundamentals of Business Mathematics.
2. Set theory and functions. Function limit.
3. Differential and integral calculation.
4. Linear algebra.
5. Linear inequalities and systems. Linear programming.
6. Probability theory.
7. Mathematical statistics.

**Recommended or required reading and other learning resources/tools**

1. J. Olivier (2018). Business Math. A Step-by-Step Handbook: <http://solr.bccampus.ca:8001/bcc/file/16301119-8ec4-4241-b0f7-cc87ffc942d6/1/Olivier%20Business%20Math%20Basic%202018%20Revision%20A%20Entire%20Textbook.pdf>
2. M. J. Alhabeeb (2012). Mathematical Finance. John Wiley & Sons, Inc: <https://onlinelibrary.wiley.com/doi/book/10.1002/9781118106907>
3. K. Matthews (1991). Elementary Linear Algebra. Lecture notes: <http://www.numbertheory.org/book/>
4. Calculus Volume 1: <https://openstax.org/books/calculus-volume-1/pages/preface>