

title of the subject: Mathematics	credits: 2+2
type of the subject: lecture and practical course	
appraisal (examination/ practical course mark / other): examination and practical course mark	
place in the curriculum (semester): 1	
prerequisites (<i>if any</i>):	
description of the subject:	
<p>The goal of this course is to gain a better understanding of those branches and fundamental concepts of mathematics that are needed most frequently in cognitive science. We shall take a look at the following areas: combinatorics, probability theory, linear algebra, the basics of analysis, and differential equations, accompanied by examples of psychological and biological applications. It is impossible to cover all these areas in a single course in any sufficient depth; still I think it is preferable for cognitive scientists who are not also mathematicians to have two skills: (i) understanding literature that contains mathematical formulas and terminology, (ii) using mathematical knowledge in building computer models (well, at least some, but the more the better). In addition to well-applicable mathematical ideas I also plan to include some fun ideas and proofs that connect to those with practical importance. For numerical solutions when we need them, we will use Matlab or R-Studio.</p>	
required readings:	
<p>Crilly, T. (2007). <i>50 mathematical ideas you really need to know</i>. London: Quercus. Strang, G. (2009). <i>Introduction to linear algebra</i>. Wellesley, MA: Wellesley Cambridge Press Holzner, S. (2008). <i>Differential equations for dummies</i>. New York: Wiley.</p>	
Person in charge of the subject (<i>name, position, scientific degree</i>): Zoltán Jakab , assistant professor, PhD	
Teacher(s) of the subject if any (<i>name, position, scientific degree</i>) : Zoltán Jakab , assistant professor, PhD	