Subject information

2026 autumn

Name	Mathematical Analysis
Code	BAI0172
Semester	3
Credit	6
Classes/week	2+2
Subject prerequisite	-

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Semester theme:
The concept of function, inverse and composition of functions, image and inverse image of sets. Axioms for real numbers, number sets, cardinality. Real functions, inequalities. Metric properties of real numbers, sequences of real numbers and its properties, calculus of limits. Absolute and conditional convergence of series, convergence tests, power series. Limit of a function at a point and continuity, properties of continuous functions on closed intervals. Derivative of functions of one variable, mean value theorems, analysis of graphs of functions, maxima and minima problems. L'Hospital rule, Taylor polynomials, value estimation. Primitive function, integration rules, integration by parts and by substitution. Riemann integral of functions of one variable, basic properties, Newton-Leibniz formula, improper integral, applications.

Participation in the sessions:
Participation in practical sessions is **mandatory**. The permissible amount of absence during the semester in full-time education is **three times** the number of weekly contact hours of the subject. If this is exceeded, the semester cannot be evaluated.

Requirements:
Active participation in classes is mandatory. Two in-class tests are taking place scheduled for week 7 and week 13. Based on these two tests a grade will be given. The grade system for the course is the following:

Excellent (5): 80-100%
Good (4): 60-79%
Fair (3): 40-59%
Sufficient (2): 20-39%
Fail (1): 0-19%

Recommended literature:
1. Adams Robert*: Calculus: A Complete Course*, Pearson Education (US), 2021
2. Howard Anton, Irl C. Bivens, Stephen Davis: *Calculus Early Transcendentals*, 12th Edition, International Adaptation, John Wiley & Sons Inc, 2022
3. István Blahota: Mathematical Analysis - lecture outline, 2025.

Other expectations:
In every other regard, this syllabus is not covering, the Code of Studies and Examination of University of Nyíregyháza and Student Disciplinary and Compensation Rules shall apply.
https://english.nye.hu/en/node/44

September 6, 2026.

Laszlo Vajday
lecturer