

# Economic Calculus II.

Course Information, Spring Semester 2025-26  
For Business Administration and Management students

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*I kindly ask everyone who is taking this course this semester to carefully read and save this course information for later study.*

## 1. Course Details

Course Title (Code): Economic Calculus 2. (BGZ1291)  
Location, Time of Lectures: Building A. III/352, Thursdays 9:00–12:00  
Lecturer: Gábor Marcell Molnár ✉ molnar.gabor@nye.hu  
Office Hours: Mondays 11:00-11:45, Office B241 (email me in advance)

## 2. Requirements

### Attendance & Participation

Attendance at practical classes is **mandatory**. To remain eligible for a grade, students must not exceed 3 absences.

### Assessment & Grading

Your final grade is based on two practical tests. To pass the course, it is necessary (but **not sufficient**) achieve a minimum score of 20% on each individual test. The tests are planned as follows

- Midterm (week 7 or 8.)
- End-term (week 13.).

The final percentage is calculated as the arithmetic mean of the two exam scores in percentages:

Excellent (5):	85 – 100%
Good (4):	70 – 85%
Satisfactory (3):	55 – 70%
Pass (2):	40 – 55%
Fail (1):	0 – 40%

### Retake & Grade Improvement

Those who did not take the midterm or end term tests (for any reason), took it but failed, or just want to improve the grade can retake the tests on week 14. You can either

- retake one of the tests;
- retake both tests with a test consisting of the whole semester material.

### **3. Topics**

Basic concepts of combinatorics: permutation, combination, variation, binomial theorem. Events, event algebra. Basic concepts of probability theory. Classical probability field. Geometrical probability. Conditional probability. Random variable, distribution function, density function and its properties. Expected value, standard deviation. Markov and Chebisev inequality. Discrete distributions: characteristic, binomial, hypergeometric, Poisson distribution. Absolute continuous distributions: uniform, exponential, normal distribution. Covariance, correlation. The combinatorial, probability calculation of economic problems in everyday life. Linear space. Linear dependence, independence. Basis transformations. Solving economic problems through base transformation. Matrix arithmetic: concept of matrix. Operations with matrices. Inverse matrix. Matrix arithmetic used for economic problems. Determination of solutions and solution of the linear equation system. Practical applications. Production programming problem. Shipping problem. Linear programming.

### **4. Recommended Literature**

- Joseph K. Blitzstein, Jessica Hwang: Introduction to Probability
- David C. Lay, Steven R. Lay, Judi J. McDonald: Linear Algebra and its Applications (available online)

### **5. Other Expectations**

In all other respects not covered by this course information, the Study and Examination Regulations of Nyíregyháza University and the Code of Ethics of Nyíregyháza University are authoritative.

February 12, 2026.

Gábor Marcell Molnár