

Syllabus

2026 autumn

Subject: Operations research

Instructor: Dr. Sikolya-Kertész Kinga

Course code: BPI1112

Type: Lecture + Practical

Number of hours/week: 2+2

Credit: 6

Midterm requirements: Practical grade

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Participation in Classes: Attendance at lectures is recommended. Participation in practical classes is compulsory. In full-time programmes, the maximum permitted number of absences per semester is three times the number of weekly contact hours for the subject. Accordingly, no more than three absences from practical classes are allowed. Exceeding this limit will result in the semester not being assessed (TVSz §8 (1)).

Method and Schedule of Assessment, Method of Grading:

Two closed-book exams will be administered during the practical sessions, in weeks 7 and 13. The results of these exams will determine the practical grade, which will be awarded as follows:

Excellent (5): 89--100%
Good (4): 76--88%
Satisfactory (3): 63--75%
Pass (2): 50--62%
Fail (1): 0--49%

There is one opportunity to retake or correct the closed-book exams, which will take place in week 14.

Course Description:

This course introduces fundamental concepts and solution techniques in mathematical optimization with a focus on linear and nonlinear programming.

Topics include:

- Problems that lead to linear programming formulations.
- Convex polyhedra and their vertices.
- The Simplex method and its applications.
- Sensitivity analysis and duality theory.
- Transportation and assignment problems.
- Network models.

- Selected nonlinear programming problems.

The course emphasizes both the theoretical foundations and practical problem-solving skills needed for real-world applications.

Bibliography:

- Wayne L. Winston: Operations Research. Thomson Publishing, 2004.
- Rober J Vanderbei: Linear Programming: Foundations and Extensions. Springer

2026. szeptember 10.

Dr. Sikolya-Kertész Kinga