QUANTITATIVE METHODS – Syllabus and General Information

5 CREDITS, WINTER SEMESTER

Aim of the course:
The course Quantitative Methods makes the participants acquainted with basic knowledge and terms from the area of algebra and mathematics so that the students shall be able to use the introduced constructions and explained thought and numerical procedures in their future autonomous study. Further, they will acquire a variety of numerical skills.

Requirements

1) 70% attendance at the seminars (or calculating a mathematical problem or writing a seminar paper)

2) Two tests

a) for 30 points=TEST (on the 6th of November) and

b) for 70 points= FINAL EXAM (on the 11th of December).

Form of the exam: written. You can gain extra point for tasks and homework.

Evaluation: A (100-90 points), B (89-80), C (79-70), D (69-65), E (64-60), F (59-0).

Content

1. Motivational introduction, history of mathematics
2. Algebraic Expressions
3. Equations and Inequalities
4. Matrix calculus
5. Determinants
6. Systems of linear algebraic equations
7. Sequences, limits of sequences
8. Basic functions of one real variable
9. Limits of functions of one real variable
10. Differential calculus of functions of one real variable
11. Using differential calculus of functions of one real variable
12. Integral calculus of functions of one variable and its applications
13. Application of differential and integral calculus in economics and management

Literature:

- PRICHET, G. D. and J. C. SABER. Mathematics with applications in management and economics. Boston, Sydney: IRWIN, Burr Ridge, 2004. ISBN 0-256-09237-0.
- BRADLEY, T., PATTON, P. *Essentials Mathematics for Economics and Business*. West Susex: John Wiley & Sons Ltd, 1998. ISBN 0-471-97511-7.

LECTURE SCHEDULE

1) (25.9.2023) Entrance test and general information
2) (2.10.2023) Function (linear, quadratic, logarithm, exponential)
3) (9.10.2023) Matrix calculus
4) (16.10.2023) Determinants
5) (23.10.2023) Sequences, limits of sequences
6) (30.10.2023) Differential calculus of functions of one real variable
7) (6.11.2023) TEST (content = 1 – 6 lecture)
8) (13.11.2023) INDIVIDUAL WORK (topic: Using differential calculus in economy)
9) (20.11.2023) INDIVIDUAL WORK (topic: Description of macroeconomic indicators of a selected EU country)
10) (27.11.2023) Using differential calculus of functions of one real variable
11) (4.12.2023) Limits of functions of one real variable
12) (11.12.2023) Final exam the 1st term
13) (18.12.2023) Final exam the 2nd term