Public Management Bachelor Programme

Module	B1 – Mathematics
Semester	1st semester (winter semester)
Course	Mathematics (L/E) DE
Workload	2 SPW	60 workload hours (22.5 attendance hours, 37.5 self-study hours)
Admission prerequisites	–
Module coordinator	Prof. Dr. Stefan Zahradnik

1. Learning outcomes
Students will acquire the mathematical skills that should have been learnt at school and are required for modules in the Public Management Bachelor programme. Essentially, the objective of this preparatory course is to fill the gaps in students' prior knowledge of mathematics.

2. Recommended prior knowledge and skills
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3. Contents

- Arithmetic and geometric sequences and series, including summation signs and threshholds
- Calculating interest and compound interest
- Linear interpolation
- Terms, fractions, law of distribution, calculations with powers and roots, logarithms
- Solving simple (linear and quadratic) equations, binomial formulae
- Solving linear equation systems using the Gaussian elimination method
- Functions (concept, properties and graphs)
- One-dimensional differential calculus for polynomials (frontier function, elasticity, optimum values, finding approximations to zeroes of real-valued functions using Newton's method)
- Two-dimensional differential calculus for polynomials (partial derivative, extreme values with and without constraints)
  - Basics of integral calculus (integral concept, integral calculations with primitives for polynomials)

4. Modes of teaching and learning, workload
Lecture with active feedback from students and integrated practical exercises (22.5 hrs); preparation and revision of lectures (37.5 hrs).

5. Type of examination
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6. Literature
HOLEY, Thomas; WIEDEMANN, Armin: *Mathematik für Wirtschaftswissenschaftler*, 4. Auflage, Heidelberg 2016.