

Lecture information

„Numerics for Ordinary Differential Equations“

Autumn term 2025

Lecturer

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Administration

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Lecture/Exercise classes

Wednesday	8:30 – 10:00 Uhr	B6, Room A 203
Thursday	12:00 – 13:30 Uhr	B6, Room A 203

We will flexibly use those two slots for Lectures and Exercises and announce the schedule at the beginning of the semester. The first lecture will be on **03.09.2024**.

The content of the lecture (script, exercises, etc.) is provided on ILIAS. Please check ILIAS regularly for further information. You will receive the password for ILIAS in the first lecture.

Further information

- **First exercise sheet** will be available online on **03.09.2025**.
- There will be **5 mandatory programming exercises**. Please work in pairs and hand in your solutions to the programming exercise within one week after the sheet is available online. Solutions must be uploaded in ILIAS.
- After the submission, there will be additional appointments for the discussion of the programming exercise. The times of those appointments will be set within the first two lectures.
- There will be oral exams at the end of the semester.

Contents

This course covers basic numerical concepts for solving ordinary differential equations (ODEs) and gives insight to possible applications. Many problems stemming from science and engineering can be modelling using systems of ODEs. In general, those problems are difficult to solve analytically, therefore basic methods for numerical solutions are studied.

Admittance to the exam

Every participant needs to hand in a reasonable solution for each programming exercise. For the admission to the exam at least 75% of the exercises (including discussions) need to be successful.

Literature

Please consider the following books for supplementary reference:

- *Moler, C. B.*, Numerical computing with MATLAB, SIAM, 2004.
- *Deufhard, P., Bornemann, F.*, Scientific Computing with Ordinary Differential Equations, Springer, 2002.
- *Deufhard, P., Bornemann, F.*, Numerische Mathematik II, de Gruyter, 2008.
- *Quarteroni, A., Saleri, F.*, Scientific Computing with MATLAB, Springer, 2005.
- *Quarteroni, A., Sacco, R., Saleri, F.*, Numerical Mathematics, Springer, 2000.