

### Schedule for the lectures of wi4201, 2025-2026

Lecture	Date	Subject	Pages
1	4-9	Introduction	1-5
2	11-9	Finite Difference Methods	6-40
3	18-9	Finite Difference Methods	6-40
4	25-9	Direct methods	41-61
5	2-10	Direct methods	41-61
6	9-10	Basic Iterative Methods	62-87
7	16-10	Basic Iterative Methods	62-87
8	13-11	Multi Grid Methods	88-95
9	20-11	Multi Grid Methods	88-95
10	27-11	Krylov SPD	96-106
11	4-12	Preconditioning	107-116
12	11-12	Krylov General	117-128
13	18-12	Krylov General/Eigenvalue methods	117-138
14	8-1-2026	Eigenvalue methods	129-138

#### Assessment

1. 2.12.12, 2.12.20, 3.12.10, 3.12.12, 4.13.1 , 4.13.3, 4.13.5, 5.9.4, 5.9.5, and 5.9.11 (should be worked out 'by hand', i.e. not run the algorithm numerically yet) should be worked out, deadline 14-11-2025 (Grade:  $G_1$ ).
2. At 16-10-2025 a take home exam including practical exercises is given. This exam can be done by groups of two students. The report of this exam should be returned to us before or on January 9, 2026 (Grade:  $G_2$ ).
3. Finally a written exam is organised on Thursday January 22, 2026 over the lecture notes (Grade:  $G_3$ ).

The final grade is computed by the formula:  $\frac{G_1+G_2+2G_3}{4}$ , provided that all Grades are larger than or equal to 5.