

MAT436 Lecture Notes

ARKY!! :3C

'25 Fall Semester

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§1 Day 1: (Sep. 3, 2025)

Attendance won't be taken every lecture. This class is glorified linear algebra. Otherwise, incomprehensible lecture (professor speaks quieter than the air conditioner). This class is truly a test if you have tinnitus or not.

Throughout this class, we will use H to refer to a Hilbert space, U a unitary operator (where $U^* = U^{-1}$), and $T \in B(H)$ a bounded operator on H . In particular, we have that $(UTU^{-1})^* = UT^*U^{-1}$.

Exercise from class. Let $S \subseteq H$. If S is a closed linear subspace, show that $S^{\perp\perp} = S$ and that S admits an orthogonal complement. Is this a sufficient and necessary condition?