

LECTURE ORGANOCATALYSIS (WiSe 2025/26)

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What to expect? Goals, Structure of Lecture, Literature

- 1) Historic Overview
- 2) Nucleophilic Catalysis: DMAP, Amidines, Phosphines, etc.

Add-on: Mayr Nucleophilicity Scale

- 3) *N*-Heterocyclic Carbene Catalysis
- 4) Enamine Chemistry
- 5) Iminium Chemistry

Add-on: Mechanistic/Kinetic Analyses of Organocatalytic Reactions

- 6) Carbonyl Catalysis
- 7) Boronic Acid Catalysis
- 8) H-Bonding Catalysis: Urea, Thiourea, Squaramides, Alcohols, Phenols
- 9) Halogen Bonding Catalysis
- 10) Lewis Acids Catalysis Phosphoric Acids & Derivatives
- 11) Lewis Base Catalysis (Cinchona Alkaloids)
- 12) Organosuperbases
- 13) Chiral Templates & Phase Transfer Catalysis
- 14) Catalysts based on Biomolecules & Site-selective Catalysis
(Cyclodextrins, DNA, Peptides)
- 15) Organocatalysis + Artificial Intelligence