Lecture: Organocatalysis (WS 2023/24)

1) Intro: What to expect? Goals, Structure of Lecture, Historic Overview
2) Nucleophilic Catalysis: DMAP, Amidines etc, Phosphines

   Add-on: Mayr Nucleophilicity Scale
3) N-Heterocyclic Carbene Catalysis
4) Enamine Chemistry
5) Iminium Chemistry
6) Carbonyl Catalysis

   Add-on: Mechanistic/Kinetic Analyses of Organocatalytic Reactions
7) H-Bonding Catalysis: Urea, Thioruea, Squaramides, Alcohols, Phenols
8) Halogen Bonding Catalysis
9) Catalysis with Sulfur and Selenium
10) Lewis Acids Catalysis Phosphoric Acids + Derivatives

    Add-On: How to make a good Poster? How to use ChatGPT for scientific writing?
11) Lewis Base Catalysis (Cinchona Alkaloids)
12) Boronic Acids
13) Organosuperbases
14) Chiral Templates & Phase Transfer Catalysis
15) Organocatalytic Reductions
16) Organocatalytic Oxidations
17) Catalysts based on Biomolecules – Site-selective Catalysis (Peptides, DNA, Cyclodextrins)
18) Combinations: Organocatalysis + Light/Electricity/Metals
19) Organocatalysis in Total Synthesis & Industry