MAT 401/520
Surface Science (Fall 2023)

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Course Hours: Mon 12:40-14.30 (FENS L030)
Tue 12:40-13:30 (FENS L030)

Office Hours: TBA

Requirements:
MAT401: 2 Midterm Exams (30% each)
Final Exam (40%)

MAT520: 2 Midterm Exams (25%)
Project (10%)
Final Exam (40%)

Resources:
Surface Science: Foundations of Catalysis and Nanoscience (by K. Kolasinski)
Introduction to Surface Chemistry and Catalysis (by Somorjai and Li)

Course Outline:
Week 1: Definition of surfaces, surface structures
Week 2-3: Thermodynamics of surfaces
Week 4: Fundamental forces; molecular interactions, surface diffusion
Week 5: Adsorption; kinetics and thermodynamics
Week 6: Midterm
Week 7: Adsorption; kinetics and thermodynamics continued
Week 8-9: Surface reactions
Week 10: Electrical properties of surfaces
Week 11: Midterm
Week 12: Mechanical and optical properties of surfaces
Week 13-14: Liquid/solid interfaces