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# Colloids II: Advanced Colloidal Chemistry (Summer Term 2026)

Lecture hours (per week in semester): 2

Exercise hours (per week in semester): 2

ECTS Credits: 5

Course contents:

## **1. Bilayer Systems (4 sessions)**

(1.1 Introduction

1.2 Structures and Properties of Bilayers in Solution) → see Colloids I

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1.3 Natural Bilayers

1.4 Analytical Methods for Bilayer Characterization

1.5 Transport Processes in Bilayer Systems

## **2. Polymers in Solution (4 sessions)**

2.1 Characteristic Polymer Parameters

2.2 Experimental Techniques for Polymer Characterization

2.3 Polymer Solubility and Conformation

2.4 Polymer Self-Assembly

2.5 Polymers and Surfactants

2.6 Polymers at Interfaces

## **3. Rheology of Colloidal Systems (2 sessions)**

3.1 Elasticity and Viscosity

3.2 Stationary Flow Characteristics

3.3 Non-Stationary Flow Characteristics

3.4 Examples: Polymer Solutions and Colloidal Dispersions

## **4. Colloidal Sols (3 sessions)**

4.1. Introduction

4.1 Preparation of Sols

4.2 Colloidal Stability of Sols

4.3 Homo- and Heterocoagulation

4.4 Clays and Clay Minerals

4.4 Aerosols

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**Exercises:** Dr. Eva Müller, [Eva.Mueller@ur.de](mailto:Eva.Mueller@ur.de)

**Prerequisites:** Introduction to Colloid Chemistry, Formulation Course