



Stockholms
universitet

Preliminary Schedule for Soft Matter, 7.5hp, 2018

Course code: KZ8001

Course responsible:

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Lectures:

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Laboratory

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Exercises

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Lecture room: C516 (north)

Literature: Ian W. Hamley: *Introduction to Soft Matter*, revised edition, Synthetic and Biological Self-Assembling Materials, Wiley 2007

Lecture	Teacher	Contents
1	AM	Introduction to the course; grading and examination (1h) Introduction to soft matter; surfactants, polymers and colloids (1h)
2	AM	Intermolecular interactions, Structural organization, dynamics (3h) <i>Section 1.1-1.4</i>
3	AM	Phase transitions, order parameters, scaling, polydispersity (3h) <i>Section 1.5-1.8</i>
4	LB	Polymers: Introduction, conformation, solutions (2h) <i>Section 2.1-2.5</i>
5	LB	Colloids: Introduction, interparticle forces and stabilisation (3h) <i>Section 3.1-3.7</i>
6	LB	Colloids: Kinetics, sols, gels (2h) <i>Section 3.8-3.10</i>
7	LB	Foams, emulsions, food colloids, concentrated dispersions, rheology (3h) <i>Section 3.11-3.15</i>
8	NH	Experimental techniques (3h) <i>Section 1.9</i>
9	NH	Amphiphiles: Introduction, surface activity, adsorption (3h) <i>Section 4.1-4.5</i>
10	NH	Amphiphiles: Micellization, detergency, liquid crystal phases, templated synthesis (3h) <i>Section 4.6-4.12</i>
11	AM	Liquid crystals: Classification and properties (3h) <i>Section 5.1-5.4</i>
12	AM	Liquid crystals: Molecular order and phase transitions (3h) <i>Section 5.5-5.8</i>
13	NH	Biological soft matter (2h) Chapter 6

Week	Time	Monday	Tuesday	Wednesday	Thursday	Friday
13 (19/3-23/3)	9:15-12:00 13:15		L1 (AM)	Self studies	L4 (LB)	L5 (LB)
14 (26/3-30/3)	9:15-12:00 13:30	L2 (AM)	L3 (AM)	L6 (LB)	L7 (LB)	EASTER
15 (2/4-6/4)	9:15-12:00 13:00-15:45	EASTER	Exercise 1	LG1 Lab1 LG2 Lab1	LG1 Lab2 LG2 Lab2	Self studies
16 (9/4-13/4)	9:15-12:00 13:30	Self studies	Exercise 2	L8 (NH)	L9 (NH)	L10 (NH)
17 (16/4-20/4)	9:15-12:00 13:00	L11 (AM)	L12 (AM)	Self studies	LG1 and LG2 Lab3	Exercise 3
18 (23/4-27/4)	9:15-12:00 13:30	L13 (NH)	Self studies	Self studies	Exam 9-14	Self studies

Laboratory exercises:

Lab1:
Rheology

Lab 2:
Light scattering

Lab 3:
Computer simulations