

KEMM20, “Molecular Spectroscopy - Methods and Applications” – 2021

Schedule: every day a lecture or a seminar/exercises from 10.15 to 12.00. Lectures and seminars/exercises will be given online.

Time after lunch – study, lab work and working on lab reports.

Lab introduction will be held online or in the Chemical Physics Library (**CPL**). Consultations either by email or online.

There are 8 sections in the course:

MP – molecular photophysics (Ivan Scheblykin)

Errors – estimating experimental errors (Donatas Zigmantas)

LS – light sources including lasers (Arkady Yartsev/Donatas Zigmantas)

SSM – steady state methods (Ivan Scheblykin/Donatas Zigmantas)

PCR – photochemical reactions and kinetics (Ivan Scheblykin/Donatas Zigmantas)

QM – theoretical basis (Tõnu Pullerits)

TRM – time-resolved spectroscopy methods (Arkady Yartsev/Donatas Zigmantas)

XR – introduction to the X-ray spectroscopy (Jens Uhlig)

L stands for a lecture; **S** – for a seminar/exercises.

Within every section you will be given some exercises or seminar discussion topics. Some help with them will be provided by the teachers during the seminars and exercise solving. You will receive material for the seminars beforehand. Please, come to the seminars prepared – then you will be able to ask useful questions.

Laboratory work

Lab responsible persons:

Linnea Lindh linnea.lindh@chemphys.lu.se

and Pavel Chabera pavel.chabera@chemphys.lu.se

Lab 1 – Building spectrometers for absorption and fluorescence spectroscopy.

Lab 2 – Optical properties of molecular systems from absorption and fluorescence measurements.

Course responsible: Donatas Zigmantas, donatas.zigmantas@chemphys.lu.se

Note! On March 24: Mandatory roll call at 9.15 via Zoom and The course starting meeting at 10.15.

		Section	Teacher	
Mar 24	Wed	Intro+spectrometers	Donatas	
25	Thu	MP-L	Ivan	
26	Fri	MP-S	Ivan	
27	Sat			
28	Sun			
29	Mon	MP-L	Ivan	
30	Tue	MP-S	Ivan	
31	Wed	Errors	Donatas	MP cons., Ivan, 13.15-14.00
Apr 1	Thu			
2	Fri			
3	Sat			
4	Sun			
5	Mon			
6	Tue	LS-L	Arkady	
7	Wed	LS-S	Arkady	Lab1 (group I) introduction and lab work 13.30-17.15
April 7 – MP solutions/answers to be submitted				
8	Thu	LS-L	Donatas	Lab1 (group II) introduction and lab work 13.30-17.15
9	Fri	LS-S	Donatas	Lab1 (group III) introduction and lab work 13.30-17.15
10	Sat			
11	Sun			
12	Mon	SSM-L (Abs/FI/FA)	Donatas	LS cons., Arkady/Donatas, 13.15-14.00
13	Tue	SSM-S (Abs/FI/FA)	Donatas	
14	Wed	SSM-L (SMS)	Ivan	Lab2 (group I) introduction and lab work, 13.30-17.15
April 14 – LS solutions/answers to be submitted				
15	Thu	SSM-S (SMS)	Ivan	Lab2 (group II) introduction and lab work, 13.30-17.15
16	Fri	PCR-L	Donatas	Lab2 (group III) introduction and lab work, 13.30-17.15
17	Sat			
18	Sun			
19	Mon	PCR-S	Donatas	SSM cons., Ivan/Donatas, 13.15-14.00
20	Tue	PCR-L	Ivan	
April 20 – SSM solutions/answers to be submitted				
21	Wed	PCR-S	Ivan	
22	Thu	PCR-L	Ivan	
23	Fri	PCR-S	Ivan	
24	Sat			
25	Sun			
26	Mon	QM-L	Tönu	PCR cons., Ivan/Donatas, 13.15-14.00
27	Tue	QM-S	Tönu	
28	Wed	QM-L	Tönu	
April 28 – PCR solutions/answers to be submitted				
29	Thu	QM-S	Tönu	
30	Fri			
May 1	Sat			
2	Sun			
3	Mon	TRM-L	Arkady	QM cons., Tönu, 13.15-14.00
4	Tue	TRM-S	Arkady	

5	Wed	TRM-L	Arkady	
May 5 – QM solutions/answers to be submitted				
6	Thu	TRM-S	Arkady	
7	Fri	TRM-L	Donatas	
8	Sat			
9	Sun			
10	Mon	TRM-S	Donatas	TRM cons., Arkady/Donatas, 13.15-14.00
11	Tue	XR-L	Jens	
12	Wed	XR-S	Jens	
13	Thu			
14	Fri			
May 14 – TRM solutions/answers to be submitted				
15	Sat			
16	Sun			
17	Mon	XR-L	Jens	
18	Tue	XR-S	Jens	
19	Wed	XR	Jens	XR cons., Jens, 13.15-14.00
20	Thu			
May 20– XR solutions/answers to be submitted				
21	Fri			
26	Wed	Exam consultation	Donatas	
June 2, Wed, 8.00 – 13.00 Exam				
August 23, Mon, 8.00 – 13.00 Repeated Exam (if needed)				