

# Syllabus

Date		Lecture Topic	10 minute Seminar Topic	Who
1	18.2.2025	The structural organization of life: Amanda Lewis	_____	_____
2	25.2.2025	Protein purification: Amanda Lewis	Viscosity of a Newtonian solution: Definition, units, how to measure.	Cancelled
3	4.3.2025	Digitalization, Fourier transforms, error propagation, measurement methods	Gaussian distribution, Error Propagation	Maud Ponticelli
4	11.3.2025	Lab Tour LBEM	_____	_____
5	18.3.2025	Mass Spectrometry: Maria Pavlou (Head of the Proteomics Core Facility, EPFL)	Ion Plasma: What is it, how can it be created, examples, applications.	Régine Musaby & Lingyu Shen
6	25.3.2025	Energy forms in life: Membrane potential, ATP, concentration gradients, protein folding	Refractive index of a solution: Definition, units, how to measure, examples	Antoine Dougoud
7	1.4.2025	Surface effects, Osmosis, Hydrodynamic Methods	Surface tension of water: Definition, units.	Youssef Kabbaj & Andrei Shytikov
8	8.4.2025	Calorimetry	Mitochondria: Structure, Function	Janica Böhler & Mamoun Slimani
9	15.4.2025	Spectroscopy with light, Structural studies with light (FTIR, OCT)	The Michelson Moorley experiment: The world's most famous failed experiment.	Audrey Perion & Daria Proniakova
	22.4.2025	(Easter Holiday)		
10	29.4.2025	Radiation Biophysics	Alpha, beta and gamma radiation: What is it, energies, sources, how to detect and measure.	Jean Pictet & Eve Aaron
11	6.5.2025	Structural studies with Electrons	Relativistic corrections for energy and mass at half light speed	Théa Seydoux & Andrii Shytikov
12	13.5.2025	Spectroscopy with NMR and SPR	Infrared spectroscopy	Maryam Laguecir & Dagrún Valsdottir Tveiten
13	20.5.2025	AFM	Forces between atoms and molecules: van-der-Vaals, electrostatic, covalent, hydrophobic, ...	Yann Ravot & Thomas Chetaille
14	27.5.2025	Structural studies with X-rays (Synchrotron, FEL)	X-ray synchrotron: Architecture, function, mode of operation, applications.	Leonor Piedrafita Alfaro