Proteomics - academic year 2015/2016
2 hours lecture, 2 hours practical for Molecular Biology M.Sc. students

02.08.	1st. week	Introduction – The biochemical properties of proteins– Éva Csősz
02.15.	2nd week	Introduction to proteomics – Why we need proteomics? What kind of data proteomics can and cannot provide? – Éva Csősz
02.22.	3rd week	Mass spectrometry basics – Éva Csősz
02.29.	4th week	Liquid chromatography basics– Éva Csősz
03.05.	5th week	Protein identification using mass spectrometry. Peptide sequencing, data interpretation – Éva Csősz
03.07.	6th week	Detection of post-translational modifications using mass spectrometry. Scan modes. Sample preparation strategies, specific enrichment – Éva Csősz
03.21.	7th week	Targeted proteomics – Éva Csősz
03.28.	8th week	Easter – holiday
04.04.	9th week	Protein purification strategies – János Mótyán
04.11.	10th week	Protein analysis, two dimensional electrophoresis – Éva Csősz
04.18.	11th week	Quantification using mass spectrometry (iTRAQ, SILAC, label-free quantification, SRM, PRM) – Éva Csősz
04.25.	12th week	The study of protein-protein interactions and protein networks – Éva Csősz
05.02.	13th week	Biomarker identification and validation using mass spectrometry – Éva Csősz
05.09.	14th week	Preparation and use of protein therapeutic agents. The role of mass spectrometry in quality control – János Mótyán
05.16.	15th week	Penticost – holiday

Lecture: Monday 13-15, Dermatology lecture hall.
Practical: between week 11-15 in Proteomics Core Facility in small groups (2 students/group). Each group will get an unknown sample and the goal is protein identification using trypsin digestion, mass spectrometry, MASCOT and ProteinPilot search engines and the knowledge learnt on the lectures. On week 15 a lab manual has to be prepared and submitted. The accepted lab manual is required for getting the signature.

Requirements:
Theoretical knowledge: material presented on the lectures. The lecture slides are available on the webpage (http://bmbi.med.unideb.hu username:student, pwd:student2015).
Requirements for signature: accepted practical
Exam: written - short assay questions and test questions. Max. 25 points can be achieved.