Course Structure Diagram 2017-18
Master of Science (MSc) in Protein Science and Biotechnology
2 years, 120 ECTS credits
(Students starting their studies in autumn 2017)

		1st year		2nd year	
Code	**Entities, courses, part of courses and scope**	**autumn**	**spring**	**autumn**	**spring**
	Obligatory Studies (77 ECTS credits)				
744626S	Protein chemistry II, 5 ECTS cr	5			
744627S	Molecular biology II, 5 ECTS cr	5			
747616S	Biochemical methodologies II, 10 ECTS cr, 1st autumn	10			
744628S 744629S	Orientation to Research Work and/or Orientation to Biochemical Work, Total 10-15 ECTS cr	5	10		
744691S	MSc thesis (Pro gradu) 30 ECTS cr			10	20
744692S	MSc thesis, additional experimental work (0-30 ECTS, in 5 ECTS blocks)			20	
740672S	Maturity test (M.Sc. degree), 0 ECTS cr				
	Total ECTS credits (Obligatory Studies)	**25**	**10**	**30**	**20**
	Optional Studies (a minimum of 3 of these courses must be taken)				
747617S	Biochemistry and biotechnology of protein folding 5 ECTS cr, spring		5		
744630S	Systems biology 5 ECTS cr, spring				
747615S	Introduction to structure-based drug discovery 5 ECTS cr, spring		5		
747614S	Macromolecular x-ray crystallography, 5 ECTS, spring		5		
747613S	In silico methodologies in biochemistry and molecular medicine 5 ECTS cr, autumn	5			
	Other Optional studies				
902154Y	Scientific communication for biochemists , 5 ECTS, spring		5		
744631S	Dissertation 15 ECTS cr				
744625S	Scientific presentation 1-2 ECTS cr				
747694S	Final examination in protein science and biotechnology 10 ECTS cr				
744632S	Yeast genetics 5 ECTS cr, spring				5
743668S	Tumor cell biology 5 ECTS cr, autumn				
743662S	Extracellular matrix 5 ECTS cr, spring				
743663S	Developmental biology, stem cells and tissue engineering 5 ECTS cr, spring				
743664S	Hypoxia response pathway – molecular mechanisms and medical applications, 5 ECTS cr, autumn				
743667S	Virology 5 ECTS cr, spring				5
743666S	Introduction to Immunology 5 ECTS cr, spring				
740381A	Biochemical and biomedical Innovation, 2-5 ECTS cr				
300002M	Advanced Information Skills (Science and Technology library Tellus) 1 ECTS cr				
488321S	Bioreactor technology (Bioprocess Engineering Laboratory) 5 ECTS cr, autumn				
488305S	Advanced course for biotechnology (Bioprocess Engineering Laboratory), 5 ECTS cr, spring				
580402S	Biomedical Imaging Methods (Institute of Biomedicine), 1-5 ECTS cr				
040911S	Using animals in research - carrying out procedures, 3 ECTS cr, spring				
	Any other courses listed in any MSc line in biochemistry				
	Total ECTS credits (Optional studies)	**5**	**20**		**10**
	Optional studies at any university (0-15 ECTS credits)				

	Up to 15 ECTS credits of courses can be taken from other suitable courses taught at any university. Also courses given by research units eg. Biocenter Oulu will be accepted. Courses must be connected to biochemistry or logically support some aspect of it and be at an appropriate level. The content of the courses must not be too similar to other courses which have counted towards the students BSc degree or towards their MSc. In all cases Amanuensis Jari Heikkinen should be contacted to confirm acceptance / suitability. We would advise that this is done before the course is taken, especially in the case of courses taken from universities outside Finland. A list of previously accepted courses can be found on the teaching pages of the faculty web pages, please consults this list before contacting Amanuensis Jari Heikkinen.				
	Total ECTS credits / Term	**30**	**30**	**30**	**30**
	Total ECTS credits / Academic Year		**60**		**60**
	Total of ECTS credits / Master's Degree				**120**