

Course Structure Diagram 2018-19
Master of Science (MSc) in Protein Science and Biotechnology
2 years, 120 ECTS credits
(Students starting their studies in autumn 2018)

Code	Entities, courses, part of courses and scope	1st year		2nd year	
		autumn	spring	autumn	spring
	Obligatory Studies (60 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	Orientation to Research Work and/or	5	10		
744629S	Orientation to Biochemical Work, Total 10-15 ECTS cr				
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, autumn	5			
747613S	In silico methodologies in biochemistry and molecular medicine 5 ECTS cr, spring		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, spring				
743662S	Extracellular matrix 5 ECTS cr, autumn				
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				
740079Y	Activities in University and Student Organizations, 1-10 ECTS cr, 1.-3.v				
	<i>Minor in Introduction to business studies</i>				
724103P	Strategic Management, 5 ECTS cr, yr1-yr2				
724105P	Management Accounting, 5 ECTS cr, yr1-yr2				

724106P	Principles of Marketing, 5 ECTS cr, yr1-yr2				
724109P	Investment Decisions, 5 ECTS cr, yr1-yr2				
724110P	Introductory Economics, 5 ECTS cr, yr1-yr2				
	<i>Minor in Industrial engineering and management</i>				
555225P	Basics of industrial engineering and management, 5 ECTS cr, yr1-yr2				
555285A	Project management, 5 ECTS cr, yr1-yr2				
555242A	Product development, 5 ECTS cr, yr1-yr2				
555264P	Managing well-being and quality of working life, 5 ECTS cr, yr1-yr2				
555286A	Process and quality management, 5 ECTS cr, yr1-yr2				
	<i>Minor in Entrepreneurship</i>				
724811A	Entrepreneur for Tomorrow, 5 ECTS cr, yr1-yr2				
724812A	Building Change Through Entrepreneurship, 5 ECTS cr, yr1-yr2				
724813A	Entrepreneurship in Action, 5 ECTS cr, yr1-yr2				
724814A	Introduction to Business Development, 5 ECTS cr, yr1-yr2				
724815A	Entrepreneurial Assignment, 5 ECTS cr, yr1-yr2				
724816A	Building Business Through Creativity and Collaboration, 5 ECTS cr, yr1-yr2				
	Any other courses listed in any MSc line in biochemistry				
	Total ECTS credits (Optional studies)	5	20		10
	Optional studies at any university				
	Other suitable courses taught at any university (for minimum 120 credits of MSc Degree) will be accepted as optional studies. Courses given in research units eg. Biocenter Oulu will be accepted. Courses must be connected to biochemistry or logically support some aspect of it and they will have to 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 Academic Officer 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.				
	Total ECTS credits / Term	30	30	30	30
	Total ECTS credits / Academic Year		60		60
	Total of ECTS credits / Master's Degree				120