

**Course Structure Diagram 2016-17****Master of Science (MSc)****International Master's Programme in Protein Science and Biotechnology****2 years, 120 ECTS credits****(Students starting their studies in autumn 2016)****Year/Semester**

2 / Spring	Pro gradu thesis 20 ECTS cr	Optional studies 10 ECTS cr
2 / Autumn	Pro Gradu experimental work 28 ECTS cr	Optional studies 2 ECTS cr
1 / Spring	Obligatory studies 12 ECTS cr	Optional studies 18 ECTS cr
1 / Autumn	Obligatory studies 16 ECTS cr	Optional studies 14 ECTS cr

Code	Entities, courses, part of courses and scope	1st year		2nd year	
		autumn	spring	autumn	spring
	<b>Obligatory Studies (76 ECTS credits)</b>				
<a href="#">747601S</a>	Protein production and analysis 8 ECTS cr, <b>1st autumn</b>	8			
<a href="#">747608S</a>	Biochemical methodologies II, 8 ECTS cr, <b>1st autumn</b>	8			
<a href="#">744617S</a> <a href="#">744624S</a>	Orientation to Research Work and/or Orientation to Biochemical Work, Total 12-18 ECTS cr <b>1st spring</b>		12		
<a href="#">747691S</a>	Pro gradu experimental work in protein science and biotechnology 28 ECTS cr			28	
<a href="#">747692S</a>	Pro gradu thesis in protein science and biotechnology, 20 ECTS cr				20
<a href="#">740672S</a>	Maturity test (M.Sc. degree), 0 ECTS cr				
	<b>Total ECTS credits (Obligatory Studies)</b>	<b>16</b>	<b>12</b>	<b>28</b>	<b>20</b>
	<b>Optional Studies (a minimum of 3 of these courses must be taken)</b>				
<a href="#">747611S</a>	Biochemistry of protein folding 3 ECTS cr, spring				3
<a href="#">744619S</a>	Systems biology 4 ECTS cr, autumn	4			
<a href="#">747615S</a>	Introduction to structure-based drug discovery 5 ECTS cr, spring		5		
<a href="#">747614S</a>	Macromolecular x-ray crystallography, 5 ECTS, spring		5		
<a href="#">747606S</a>	Structural enzymology 3 ECTS cr, autumn				
<a href="#">747613S</a>	In silico methodologies in biochemistry and molecular medicine 5 ECTS cr, autumn	5			
	<b>Other Optional studies</b>				
<a href="#">744618S</a>	Dissertation 18 ECTS cr				
<a href="#">744625S</a>	Scientific presentation 1-2 ECTS cr				
<a href="#">747693S</a>	Final examination in protein science and biotechnology 9 ECTS cr				
<a href="#">744623S</a>	Yeast genetics 3-6 ECTS cr, <b>spring</b>				6
<a href="#">902154Y</a>	Scientific communication for biochemists , 5 ECTS		5		
<a href="#">740381A</a>	Biochemical and biomedical Innovation, 2-5 ECTS cr				
<a href="#">030008P</a>	Information Skills for foreign degree students 1 ECTS cr (Science and Technology library Tellus)				1
<a href="#">488321S</a>	Bioreactor technology (Bioprocess Engineering Laboratory) 5 ECTS cr, <b>autumn</b>	5			
<a href="#">488305S</a>	Advanced course for biotechnology (Bioprocess Engineering Laboratory), 5 ECTS cr, <b>spring</b>				
<a href="#">040911S</a>	Using animal in research – carrying out procedures (Laboratory Animal Centre) 3 ECTS cr, <b>spring</b> (probably course is not organized every year in English)		3		
	Any other MSc level course offered by the Faculty of biochemistry and molecular medicine.				
	<b>Total ECTS credits (Optional studies)</b>	<b>14</b>	<b>18</b>	<b>0</b>	<b>10</b>
	<b>Optional studies at any university (0-15 ECTS credits)</b>				

	<p>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.</p>			2	
	<b>Total ECTS credits / Term</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>
	<b>Total ECTS credits / Academic Year</b>		<b>60</b>		<b>60</b>
	<b>Total of ECTS credits / Master's Degree</b>				<b>120</b>