

Programme Specification

1	Awarding body	University of London				
2	Teaching Institution	Birkbeck College				
3	Programme Title(s)	MRes Structural Biology				
4	Programme Code(s)	TMRBISCL_C				
5	UCAS code	N/A				
6	Home Department	Biological Sciences				
7	Exit Award(s)	N/A				
8	Duration of Study (number of years)	1 year				
9	Mode of Study	FT	x	PT		DL
10	Level of Award (FHEQ)	Level: 7				
11	Other teaching depts or institution	Structural and Molecular Biology Department, UCL				
12	Professional, Statutory Regulatory Body(PSRB) details	N/A				
13	<u>QAA Benchmark Group</u>	N/A				

14	Programme Rationale & Aims
	<p>The MRes Structural Biology is a research-lead Masters degree focussing on the techniques and methodologies that underpin the elucidation of 3D molecular structures and the macromolecular assemblies in which they participate. It combines a taught module with a substantial 8 month project component to enable students to have significant research experience in a relevant context. The course therefore draws heavily from the research strengths of staff within the Department of Biological Sciences, particularly those engaged in the study of macromolecular machines, signalling pathways and drug design. The course thus provides students with the theoretical and practical skills now routinely required for entry to the majority of competitive PhD programmes in Structural Molecular Biology.</p>

15	Entry Criteria
	Applicants should have a second class degree in the life-sciences, mathematics, physics, chemistry or other related discipline.

16	Learning Outcomes
	<p>Subject Specific:</p> <ol style="list-style-type: none"> 1. Be conversant with the basic principles of the key methods currently used for macromolecular structure determination and more widely, those involved in 3-D bioimaging at the molecular level. 2. Demonstrate understanding of the principles of macromolecular structure and function. 3. Describe how the important cellular pathways in which macromolecular assemblies operate thus acquiring state-of-the-art knowledge of current mechanisms of interest.

	<p>4. Obtain skills in bioinformatics that include molecular modeling, perl/Java-programming and statistics. All of which are required for the interrogation of macromolecular systems. (This is only applicable to those who opt for the Bioinformatics I module and pass the aptitude test).</p> <p>5. An understanding of core programming concepts (e.g. variables, operators, functions and control statements) if applicable, see 4 above.</p> <p>6. The ability to write simple scripts in Perl/Java to undertake essential tasks (e.g. extracting data from protein sequence files in various formats) if applicable, see 4 above.</p> <p>7. The ability to identify appropriate files of existing code (libraries and modules) and incorporate them into scripts designed to carry out particular tasks if applicable, see 4 above.</p> <p>Intellectual:</p> <p>8. Ability to search and evaluate the relevant scientific literature and web resources.</p> <p>9. Interpretation of data and its critical analysis.</p> <p>10. Ability to follow scientific protocols (if relevant).</p> <p>11. Place their research in a wider context.</p> <p>Practical:</p> <p>12. Be able to perform experimental lab-based procedures (where appropriate) from protocols.</p> <p>13. Ability to generate data using appropriate software and its subsequent analysis (if relevant).</p> <p>14. Work safely and efficiently in a lab setting (if relevant)</p> <p>Social and generic:</p> <p>15. Work within a research group.</p> <p>16. Show improved self-discipline and time management skills.</p> <p>17. Ability to present work orally</p> <p>18. Show improved self-confidence in the subject through interactions with tutors and fellow students.</p>
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17	Learning, teaching and assessment methods
	<p>The programme comprises taught modules in the Autumn and Spring terms. These are delivered in a face-to-face format involving lecture series both at Birkbeck and at UCL. In addition to formal lectures, weekly tutorials, computer and lab-based techniques sessions as well as computer aided learning are also included.</p> <p>The main emphasis of the course is on a research-based project that forms the basis of a literature review and subsequently an MRes thesis. The project is conducted in the research group of a departmental staff member and may be either lab based or computational. It is constructed to allow for the completion of a substantive piece of work akin to that experienced in the 1st year of a PhD programme.</p>

18	Programme Description
<p>The MRes Structural Biology is a 1 year, full time programme. All students take either <i>Assessed Coursework MRes Structural Biology I</i> or <i>Assessed Coursework MRes Structural Biology II</i> (30 credits), plus <i>Literature Survey and Oral Presentation</i> (30 credits), and <i>Thesis and Viva MRes Structural Biology</i> (120 credits).</p> <p><i>Assessed Coursework MRes Structural Biology I</i> and <i>II</i> share 50% of their total content, both having as compulsory components the <i>Principles and Practices in Structural Biology</i> and <i>Bioc3006 Lecture Series</i> (at UCL) that together constitute 15 credits. <i>Assessed Coursework MRes Structural Biology I</i> also encompasses the 15 credit, <i>Biocomputing 1</i> component, entry to which requires passing an aptitude test. Students who do not possess the skill-set for <i>Biocomputing 1</i>, or who prefer not to take this component, instead take <i>Assessed Coursework MRes Structural Biology II</i> in which the <i>Biocomputing 1</i> component is replaced either by <i>Protein Crystallography</i> or by <i>Techniques in Structural and Molecular Biology</i> (delivered via distance learning). <i>Assessed Coursework MRes Structural Biology I</i> and <i>II</i> both involve a combination of traditional lectures, distance learning, lab/computer based classes and are assessed by problem orientated coursework, in-class exams and attendance.</p> <p>The <i>Literature Survey and Oral Presentation</i> module includes an 8,000 word literature review and 10 minute presentation based on a chosen research project offered by a departmental staff member. Gaining a pass for the literature review is a strict requirement for progression beyond the Spring term.</p> <p>The research project, <i>Thesis and Viva MRes Structural Biology</i>, constitutes the remainder of the programme. It extends in duration over 8 months, from the end of the Autumn term to the following July. The project is assessed on the basis of a 40,000 word thesis that is defended orally in a viva.</p>	

19	Programme Structure			
Full Time programme				
Year 1				
Level	Module Code	Module Title	Credits	Status*
7	CRY022S7	Assessed Coursework MRes Structural Biology I or	30	compulsory
	SCBS026S7	Assessed Coursework MRes Structural Biology II		
7	CRY021S7	Literature Survey and Oral Presentation	30	compulsory
7	CRY020Q7	Thesis and Viva MRes Structural Biology	120	core

Status*

CORE – Module must be taken and passed by student; COMPULSORY – Module must be taken, mark can be reviewed at sub-exam board; OPTIONAL – Student can choose to take this module

20	Programme Director	Tracey Barrett
21	Start Date (<i>term/year</i>)	Pre 2008
22	Date approved by TQEC	Pre 2008
23	Date approved by Academic Board	Pre 2008
24	Date(s) updated/amended	March 2016