

Programme Specification

1	Awarding body	University of London					
2	Teaching Institution	Birkbeck College					
3	Programme Title(s)	Postgraduate Certificate Protein Crystallography					
4	Programme Code(s)	TPCCRPRO_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		PT		DL	x
10	Level of Award (FHEQ)	7					
11	Other teaching depts or institution	N/A					
12	Professional, Statutory Regulatory Body(PSRB) details	N/A					
13	QAA Benchmark Group	N/A					

14	Programme Rationale & Aims
	<p>Main Aims:</p> <p>Protein crystallography is no longer solely the domain of the mathematician and physicist, but that of the biologically-orientated scientist. It is a multidisciplinary technique which overlaps with biochemistry, molecular biology, bioinformatics, biophysics and organic chemistry. For a proper understanding of biological function, a detailed knowledge of the three-dimensional structure of biological macromolecules and their interactions with ligands and the aqueous environment is required.</p> <p>Protein crystallography (or structural molecular biology), is powerful in that it can identify the residues determining substrate specificity and interactions with other macromolecules at the atomic level, allowing the targeting of site-directed mutagenesis experiments and the design of selective inhibitors, so important in industry.</p> <p>This postgraduate course is an excellent introduction to protein crystallography. It is designed for those who are interested in pursuing a career in this exciting and rapidly expanding field, especially in the pharmaceutical industry, or for those who would like to expand and update their existing scientific knowledge.</p> <p>Up-to-date descriptions of the background, methods and techniques of protein crystallography are explained, and the programme gives the biologically-orientated scientist a mainly non-mathematical insight into how protein crystal structures are determined and how results should be judged.</p> <p>Distinctive Features</p> <ul style="list-style-type: none"> An innovative course taught entirely using the internet. You study part-time in your own time, wherever you are in the world. Many of our students have full-time jobs or extensive family responsibilities.

Year of entry: 2022/23

	<ul style="list-style-type: none"> • Taught within the Department of Biological Sciences which, with University College London, is part of the leading research-based Institute of Structural and Molecular Biology. Several of the department's world-class researchers contribute to the course. • May be taken as a stand-alone certificate course or as part of our acclaimed internet-based MSc Structural Molecular Biology.
15	Entry Criteria
	Degree in science, computing or mathematics, or equivalent qualification, or relevant work experience.
16	Learning Outcomes
	<p>On successful completion of this course, students should be able to:</p> <ul style="list-style-type: none"> • demonstrate comprehensive knowledge of the key concepts involved in protein structure determination along with practical examples and applications • analyse the underlying theories frequently not found in the literature • engage with the principals underpinning protein crystallography and assess when they might be appropriately applied.
17	Learning, teaching and assessment methods
	<p>All teaching is internet-based. The course material is released in several sections on a dedicated, password-protected website.</p> <p>Students must successfully complete both coursework and the written exam, which may be taken at an examination centre close to them. All modules are examined by a single 3 hour exam. Students are required to answer the questions for the modules they sat and spend 1.5 hours per module.</p>
18	Programme Description
	<p>The programme introduces up-to-date descriptions of the background, methods and techniques of protein crystallography, and the programme gives the biologically-orientated scientist a mainly non-mathematical insight into how protein crystal structures are determined and how results should be judged.</p> <p>Students will learn:</p> <ul style="list-style-type: none"> • the fundamentals of protein structure • x-ray diffraction and symmetry • how to determine structures using protein crystallography • how to judge the quality of co-ordinates.

19	Programme Structure			
Part Time 1-year programme				
Year 1				
Level	Module Code	Module Title	Credits	Status*
7	SCBS060S7	Protein Crystallography	30	Compulsory
Plus one 30 credit optional module from indicative list below:				
7	SCBS056S7	Principles of Protein Structure	30	Optional
7	SCBS057S7	Protein Structure Determination	30	Optional
7	SCBS058S7	Protein Expression and Purification	30	Optional
7	SCBS059S7	Protein Bioinformatics	30	Optional
7	SCBS061S7	Macromolecular and Cellular Electron Microscopy	30	Optional

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	Dr Tracey Barrett
21	Start Date (<i>term/year</i>)	Autumn 1997
22	Date approved by TQEC	Spring 1997
23	Date approved by Academic Board	Summer 1997
24	Date(s) updated/amended	August 2019 (for October 2020)