Programme Specification

1	**Awarding body**	University of London
2	**Teaching Institution**	**Birkbeck College**
3	**Programme Title(s)**	Graduate Diploma in Financial Engineering
4	**Programme Code(s)**	GDGFIEGG
5	**UCAS code (if applicable)**	N/A
6	**Home Department**	Economics, Mathematics and Statistics/
7	**Exit Award(s)**	Grad Cert
8	**Duration of Study (number of years)**	1 year FT or 2 years PT
9	**Mode of Study**	FT ✓ PT ✓ DL
10	**Level of Award (FHEQ)**	6

11	*Other teaching depts or institution (or not applicable)*	N/A
12	*Professional, Statutory Regulatory Body(PSRB) details (or not applicable)* *(include URL to PSRB)*	N/A
13	*QAA Benchmark Group (or not applicable)*	N/A

14	*Programme Rationale & Aims*

The Graduate Diploma in Financial Engineering (GDFE) serves as an introduction and preparation for advanced work in the field through the medium of lectures, lab sessions for numerical work and problems classes with staff working at the cutting edge of research.

The GDFE shares some common material with the Graduate Diplomas in Finance Economics (GDF and GDE) however the distinctive feature of GDFE is its focus on mathematical issues such as option pricing and portfolio theory and also on computational aspects, namely the development of numerical algorithms using the Matlab programming language.

The central aim is to provide students with a thorough grounding in the fundamental idea and methods of financial engineering. The programme can also be viewed as a stepping stone to the more mathematically challenging MSc in Financial Engineering; students who perform well (e.g. achieve a Merit or better) would be offered a place on the MSc. Based upon past experience, students who follow this particular path tend perform well on the MSc.

15	**Entry Criteria**

The normal requirement will be a 2.2 or better from a UK university (or an overseas qualification of an equivalent standard obtained from a university, or educational institution of university rank, following a programme of study extending over a period of no less than three years) in a quantitative subject such as mathematics, physics, statistics, economics or engineering.

 Graduates from other disciplines such as computer science will be accepted if their degree contains a major quantitative element. In some circumstances students are admitted with a first degree that is less than the 2.2 standard, provided that their subsequent work experience and/or education and training is deemed to have brought them to an equivalent standard.

16	**Prospectus Entry**
	This programme provides an introduction to mathematical finance and preparation for advanced work in the field, with teaching staff who are working at the cutting edge of research. No prior knowledge of mathematical finance is assumed, and the programme offers intensive introductions to the essentials of the subject. You will gain a thorough grounding in the fundamental ideas and methods of modern mathematical finance, including practical applications in financial engineering. You will also be provided with the necessary mathematical and statistical toolkit for studying this subject – with pre-sessional courses beginning in late September – and introduced to the interpretation and analysis of data. The programme aims to provide: knowledge of standard methods and analytical tools of univariate and multivariate calculus, using mathematics to model problems in the natural and social sciences, and to validate and revise such models if necessary; an introduction to the basic principles of finance – the key pricing models; corporate finance and market efficiency; an introduction to the interpretation and analysis of economic data; knowledge of the fundamental probability theory of mathematical finance; and, for those students not proceeding to an MSc, consolidated knowledge of fundamental principles of applied mathematical finance, i.e. financial engineering. http://www.ems.bbk.ac.uk/courses/graddip/GDFE/gdfeleaflet.pdf

17	**Learning Outcomes**
	1. To equip students with sufficient working knowledge of the core mathematics employed in the field of financial engineering. 2. To introduce the students to the interpretation and analysis of economic data; using spreadsheets to analyse the data; understand simple rules of probability, estimation and inference; derive least squares estimators and show their properties; interpret regression output and conduct tests on coefficients and residuals; read and understand articles using economic and financial data; conduct and report on a piece of empirical research that uses simple statistical techniques. 3. To introduce students to the basic principles of finance; the key pricing models; the mean variance framework for portfolio optimization; the theory of option pricing; corporate finance and market efficiency. 4. To familiarize students with some core mathematical tools of modern financial economics, to promote the ability to think in a structured framework and to clarify the importance of formal arguments. An important aim of the programme is to prepare students for the MSc in Financial Engineering. 5. To introduce students to some of the basic topics of computational finance using the MATLAB programming language.

18	**Learning, teaching and assessment methods**
	Lectures are the major teaching input, usually based around a set text. Lecturers also provide extensive handouts. Lectures are supplemented in most courses with classes to cover problem sets. Active class participation and completion of problem sets is a crucial element of the programme. Students will also attend lab sessions for the computational component of the

course.

Students will complete a project in Econometrics, which makes a vital contribution to understanding the application of econometric methods (statistical techniques for finance).

19	**Programme Description**

The pre-sessional Mathematics course commences in September, for a series of five lectures starting at 6pm. It is highly recommended that students who have only a basic knowledge of mathematics, or have not used their mathematical skills for sometime, attend the entire course. However, it is essential that all students attend the first lecture of this course.

Students taking two-years follow the Quantitative Techniques and the Applied Statistics & Econometrics modules in the first year, and the other three modules in the second year.

Students who do not achieve a sufficient standard to continue to the second year, or those students who find they are unable or unwilling to proceed for other reasons, may be award a Graduate Certificate in Quantitative Methods for Economics and Finance.

20	**Programme Structure**

Full Time programme

Year 1

Level	Module Code	Module Title	Credits	Status
6	EMMS092S6	Quantitative Techniques for Financial Engineering	30	Compulsory
6	EMEC002S6	Applied Statistics and Econometrics	30	Compulsory
6	EMEC032S6	Introduction to Mathematical Finance	30	Compulsory
6	EMEC033H6	Financial Markets	15	Compulsory
6	EMMS091H6	Computational Techniques for Financial Engineering	15	Compulsory

Part Time programme

Year 1

Level	Module Code	Module Title	Credits	Status
6	EMEC002S6	Applied Statistics and Econometrics	30	Compulsory
6	EMMS092S6	Quantitative Techniques for Financial Engineering	30	Compulsory

Year 2

Level	Module Code	Module Title	Credits	Status
6	EMEC032S6	Introduction to Mathematical Finance	30	Compulsory
6	EMEC033H6	Financial Markets	15	Compulsory
6	EMMS091H6	Computational Techniques for Financial Engineering	15	Compulsory

21	**Regulations**
	• *Admissions*
	This programme adheres to the College Admissions Policy:
	http://www.bbk.ac.uk/mybirkbeck/services/rules/AdmissionsPolicy.pdf
	(*please insert Department Admissions statement) N/A*
	Credit Transfer
	Accredited Prior Learning will be considered in line with the College Policy on Accredited Prior Learning http://www.bbk.ac.uk/mybirkbeck/services/rules/AccreditedPriorLearning.pdf
	• *Programme Regulations*
	This programme adheres to the College Common Awards Scheme
	http://www.bbk.ac.uk/mybirkbeck/services/rules/casregs.pdf
	• *Programme Specific Regulations (or not applicable)*

22	**Student Support and Guidance**
	All Birkbeck students have access to a range of student support services, details can be found on our website here: http://www.bbk.ac.uk/mybirkbeck/services/facilities

23	**Methods of Enhancing Quality and Standards**
	The College has rigorous procedures in place for the monitoring and enhancing its educational provision. This includes regular monitoring of programmes drawing on feedback from various sources including external examiner's reports, student feedback, student achievement and progression data. In addition, departments are reviewed every four to five years through the internal review process that includes external input.
	For more information please see the Quality Enhancement and Validation website www.bbk.ac.uk/qev

24	**Programme Director**	Simon Hubbert
25	**Start Date** *(term/year)*	Autumn 2007/8
26	**Date approved by TQEC**	Spring 2007
27	**Date approved by Academic Board**	Summer 2007
28	**Date(s) updated/amended**	Summer 2013