

Appendix 1: Programme Specification Pro-forma (PSP)

1. GENERAL INFORMATION	
1. Programme Title:	Master of Science in Financial Technology
2. Final Award:	Master of Science in Financial Technology
3. Exit Awards:	Postgraduate Certificate in Financial Technology Postgraduate Diploma in Financial Technology Master of Science in Financial Technology
4. Awarding Body:	Glasgow Caledonian University
5. Approval Date:	January 2022
6. School:	Glasgow School <i>for</i> Business and Society/School of Computing, Engineering and the Built Environment
7. Host Department:	Finance, Accounting and Risk
8. UCAS Code:	
9. PSB Involvement:	None
10. Place of Delivery:	Any GCU Campus, Online Distance Learning
11. Subject Benchmark Statement:	QAA Benchmarks for Computing and Finance: Computing (2019) https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-statement-computing-(masters).pdf?sfvrsn=15f2c881_10 Finance (2019) https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-statement-finance.pdf?sfvrsn=f8f3c881
12. Dates of PSP Preparation/Revision:	November 2022

2. EDUCATIONAL AIMS OF THE PROGRAMME

An introduction should be included here which describes the overall aim of the programme together with the educational aims of the programme at the exit points

Financial Technology (FinTech) is a multidisciplinary area in the intersection of finance and computer science. It has been a source of radical change in the operations, services and products offered by financial services industries. This transformation has been driven by the advances in communication networks and the portability and affordability of computing hardware and software. The derived technologies have permeated all aspects of social, cultural, and economic life and its rapid development has changed consumers' expectations of how they engage with financial institutions.

The proposed Master of Science in Financial Technology (FinTech) will prepare students for a career in the financial services with an emphasis in technologies and data management. In addition to the fundamental skills and knowledge of finance, students will be exposed to leading edge concepts in artificial intelligence (AI), blockchain (cryptocurrencies), and big data analysis amongst other emerging topics. The interdisciplinary curriculum will draw on GCU's expertise in diverse areas of finance including regulation, risk analysis, modelling, and securities and investments within the framework of systems architecture, software development, and data management. The content and teaching strategies are designed to help students gain the essential skills and knowledge to prepare them to grow as professionals within the changing landscape of the banking & finance industry.

Aim:

The aim of the MSc in Financial Technology is to prepare students to provide up-to-date support and solutions in current technological trends to financial service providers by gaining the skills and knowledge necessary to understand, design, and implement software solutions

3. INTENDED LEARNING OUTCOMES

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills, qualities and other attributes in the following areas:

3A Knowledge and Understanding:

- A1 Critically apply concepts of machine learning, neural networks, data science algorithms, advanced exploratory statistics to solve financial problems with applications of computational intelligence
- A2 Evaluate the latest software development methodologies and apply the appropriate process to the information system needs of banking and financial institutions
- A3 Critically analyse information collection techniques and analysis methods and manipulate and develop tools and technologies designed for capturing, processing, storing, transferring, analysing, and visualising data for financial applications
- A4 Develop a workable knowledge base and skills in areas of current technological development in finance (e.g., blockchain, distributed ledger technology, cybersecurity, payment systems, etc.) as applied to risk analysis and modelling, regulation, compliance, and investment analysis
- A5 Critically apply concepts of machine learning, neural networks, data science algorithms, advanced exploratory statistics to solve financial problems with applications of computational intelligence.
- A6 Evaluate the latest software development methodologies and apply the appropriate process to the information system needs of banking and financial institutions

3B Practice: Applied Knowledge, Skills and Understanding:

- B1 Critically analyse, evaluate, and synthesise qualitative and quantitative information in relation to financial technology from a range of different sources
- B2 Critically analyse current thinking, research, and business practice in the development of technological solutions to financial problems
- B3 Utilise relevant information sources in an appropriate manner to generate alternative decisions and formulate creative, innovative and responsible decisions
- B4 Demonstrate originality, insight and innovation in tackling and solving problems
- B5 Critically review, synthesise and develop knowledge relevant to financial technology in an international context
- B6 Reflect on personal learning and development

3C Generic Cognitive Skills:

- C1 Effective use of communication and information technologies to present ideas, analyse problems and develop clear and concise conclusions and recommendations
- C2 Critically analyse and interpret financial information
- C3 Cognitive and intellectual skills including critical thinking, self-reflection, creativity and ethical problem-solving.
- C4 Research skills: information retrieval and collection; data analysis and synthesis
- C5 Demonstrate the ability to identify the strengths and weaknesses of financial technology applications and develop creative responses to them
- C6 Critically review and consolidate knowledge within finance and technologies and recognise the trend towards globalisation in their development and use

3D Communication, Numeracy and ICT skills:

- D1 Numeracy skills, including the ability to manipulate financial and other technical numerical data to solve problems
- D2 Communication skills (oral and written and through digital media), and reporting to specific stakeholders, and being aware of these stakeholders' diverse needs
- D3 Effectively communicate ideas and information in compliance with the profession's regulations and policies
- D4 Locating, extracting, analysing, and presenting quantitative and qualitative information, together with analysis and commentary
- D5 Awareness of strengths and weaknesses
- D6 Critical thinking and problem solving

3E Autonomy, Accountability and Working with Others:

- E1 Take responsibility for own work, behave ethically with a strong sense of social responsibility
- E2 Self-appraise evaluate and critically reflect on own work

- E3 Demonstrate initiative and work independently in a wide range of situations
- E4 Plan and organise activities, collecting and organising information
- E5 Work creatively with others and in teams and take leadership roles where appropriate
- E6 Enhance their career prospects by appreciating the complexity and similarity of the way finance and financial technology is implemented in different parts of the world

The Common Good Curriculum aims to ensure that all GCU students can develop the attributes needed to make a positive difference in the communities they serve alongside the specialist knowledge and skills in international operations and supply chain management. These attributes are underpinned by GCU's core values of Integrity, Creativity, Responsibility and Confidence. The attributes are:

- Active and Global Citizenship – e.g., recognising and actively seeking to address global social challenges, participating in the community at a local, national or global level.
- Entrepreneurial mind-set – e.g., identifying opportunities for change; creating solutions, and putting these into practice in response to identified real world problems.
- Responsible Leadership – e.g., developing solutions that are ethical, visionary, realistic and sustainable, exercising empathy, resilience and professionalism.
- Confidence – e.g., challenging yourself and continually learning from experience; believing you can make a positive difference by what you do.

Whilst these attributes are embedded throughout the programme and all the modules, examples of where and how they are developed are shown in the Common Good Mapping Tool (Appendix 4)

The dedicated Strategy for Learning for the programme is designed specifically to meet the overall educational aims of the programme as well as the specific learning outcomes expected of students. The teaching/learning approaches will be student-centred, practical, participative, and relevant to the needs of the student, considering the availability of resources and effective use of the time available. This implies a move away from the traditional teacher centred learning in which the student's role was often passive, merely receiving information provided by the lecturer, towards a more networked and adaptive learning approach. This 'shift' is a deliberate strategic aim of the programme.

A blended approach is adopted for learning and teaching with the use of face-to-face contact in the form of lectures, seminars and workshops as well as directed and independent (including web-based) study. The nature of the classroom setting is a balance between knowledge transfer, interactivity and group activities; with students expected to contribute to the learning environment. A carefully managed learning environment will facilitate shared knowledge and understanding across a cohort of diverse international students to enhance the student learning experience. The range of modules from theoretical to practical and business-orientated is designed to generate the wide array of knowledge and skills necessary for graduates entering a broad range of financial technology related positions across a variety of sectors. Guest industry speakers will be utilised to contextualise theories and challenges discussed in class and, case study challenges will be set for student assessments.

The teaching/learning strategy incorporates the use of computer-based applications and resources and, specifically, VLEs such as GCULearn. Across the programme a range of assessment methods are deployed which are designed to enable students to demonstrate their knowledge and understanding required of the aims of the programme as well as the array of intellectual, professional and transferable skills demanded by employers. As such, a balance of coursework assessments has been created to ensure academic rigour in relation to knowledge and intellectual ability as well as the development of professional and transferrable skills. The nature of assessment is specific and relevant to the module content and therefore includes an amalgamation of investigative research, critical analysis, methodological approach, problem-solving and critical self-reflection. The use of projects, reports, and various forms of examination and self-reflection are designed to meet all learning outcomes as depicted in the Curriculum Map Appendix 4

Note: Delivery is both on campus and via distance learning.

4. PROGRAMME STRUCTURES AND REQUIREMENTS, LEVELS, MODULES, CREDITS AND AWARDS

SCQF Level 11

<u>Module Code</u>	<u>Module Title</u>	<u>Credit</u>
MMN326566	Bank Operational Risk Management	15
MMI226822	Software Development for Data Science	15
MMI226824	Artificial Intelligence and Machine Learning	15
MMN327046	Research Methods for Finance	15
MMI226820	Data Ethics and Research Methods	15
MMN325919	Financial Services Regulation	15
MMN327060	Fundamentals of Financial Technology	15
MMN324976	Financial Risk Modelling	15
MMI226820	Data Visualisation	15
MMN327047	Finance Research Project	45

Exit Award – Postgraduate Certificate in Financial Technology**Exit Awards – Postgraduate Diploma in Financial Technology**

All taught modules

Exit Award – Master of Science in Financial Technology**120****180****5. SUPPORT FOR STUDENTS AND THEIR LEARNING**

- Student Induction and Transition programmes
- Programme Handbook
- Module Handbooks and Module Descriptors

- Library with access to other local and national library resources
- Learning Development Centre (LDC) – study skills and support groups/ tutorials (including online support)
- Personal Tutors
- Student E-mail
- Open access to IT facilities
- Student Services which provide assistance and guidance
- Counselling Service and Disability Service
- International Student Advisors
- Visiting lecturer/expert presentations
- Employer visits
- Student Staff Consultative Group (SSCG)
- Student representatives on the Programme Board
- Student representation on School Board, Senate and its Standing Committees
- GCU Learn (VLE)
- Access to online discussion groups and other forms of online communication
- GCU Student Association (GCUSA)
- GCU Alumni Association

6. CRITERIA FOR ADMISSION

Candidates must be able to satisfy the general admissions requirements of Glasgow Caledonian University

Programme Admission Requirements:

Entry to the programme will require students to have...

All students whose first language is not English should meet the minimum language proficiency as stipulated by the wider GCU admissions policy of IELTS 6 (no element less than 5.5).

2:2 from a relevant computing degree or from a finance degree with an appropriate maths or computing component

7. METHODS FOR EVALUATING AND IMPROVING THE QUALITY AND STANDARDS OF TEACHING AND LEARNING

Mechanisms for review and evaluation of teaching, learning, assessment, the curriculum and outcome standards:

- Annual Programme Monitoring Process
- Annual Module Monitoring Process
- Module Evaluation Survey
- Student Experience Survey
- External Examiners' Reports
- Annual monitoring (required by Professional and/or Statutory Bodies)
- Enhancement-led Internal Subject Review (ELISR)
- Enhancement-led Institutional Review (ELIR)

Committees with responsibility for monitoring and evaluating quality and standards:

- Student Staff Consultative Group (SSCG)
- Programme Board (PB)
- School Board (SB)
- Progression and Awards Board (PAB)
- University Learning and Teaching Sub-Committee (LTSC)

- University Academic Policy and Practice Committee (APPC)
- University Senate

Mechanisms for gaining student feedback on the quality of teaching and their learning experience:

- Student Staff Consultative Group
- Student representation on Programme Board
- Student representation on School Learning, Teaching and Quality Committee
- Student representation on School Board
- Module Evaluation Questionnaire
- Student Experience Survey
- GCU Learn
- Open access to members of Programme Team e.g., Module Leaders, Programme Leader, Personal Tutor

Staff development priorities include:

- Postgraduate Certificate in Academic Practice
- Continuous Professional Development (CPD)
- Performance and Development Annual Review (PDAR)
- Peer support for teaching
- Mentoring scheme for new teaching staff
- Conference and seminar attendance and presentation
- Research Excellence Framework (REF) submission
- Fellowship of AdvanceHE
- Membership of and involvement with Professional Bodies

8. ASSESSMENT REGULATIONS

Students should expect to complete their programme of study under the Regulations that were in place at the commencement of their studies on that programme, unless proposed changes to University Regulations are advantageous to students.

The Glasgow Caledonian University Assessment Regulations which apply to this programme, dependent on year of entry can be found at: [GCU Assessment Regulations](#)

9. INDICATORS OF QUALITY AND STANDARDS

- Student progression rates
- Student Staff Consultative Meetings
- External Examiner Reports considered at Programme Boards
- Annual Module Monitoring Report of modules to the Programme Board for sharing of good practice and proposed modules enhancements
- Annual Programme Analysis
- The outcome of any Cognate Area Reviews organised by the school and /or University
- The outcome of any University internal quality audit of the programme
- The outcome of any QAA HE subject/institutional review
- Application rates
- Applications through 'word of mouth' recommendations
- Annual student satisfaction questionnaire
- Research publication: conference papers, journal articles, chapters in textbooks
- Consultancy income

10. INFORMATION ABOUT THE PROGRAMME

Key information about the programme can be found in:

- Programme Approval Document
- Programme Handbook
- Student Handbook
- Module Handbook
- University Website
- School Website
- GCU Learn
- University Module Catalogue
- University Prospectus

This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning assessment methods of each module can be found in the University Module catalogue which can be accessed from the University website. The accuracy of the information in this document is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.

A curriculum map is attached showing how the outcomes are being developed and assessed within the programme. This relates the modules from Section 4 to the outcomes in Section 3.

DATE:

The curriculum map links the modules (Section 4) to the Outcomes listed in Section 3

This map provides both a design aid to help academic staff identify where the programme outcomes are being developed and assessed within the course. It also provides a checklist for quality assurance purposes and could be used in approval, accreditation and external examining processes. This also helps students monitor their own learning, and their personal and professional development as the course progresses. The map shows only the main measurable learning outcomes which are assessed. There are additional learning outcomes (e.g., attitudes and behaviour) detailed in the module specifications which are developed but do not lend themselves to direct measurement

	Modules		Programme Outcomes																	
	Code	Title	A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5	B6	C1	C2	C3	C4	C5	C6
SCQF LEVEL 11	MMN326566	Bank Operational Risk Management	x						X						X					X
	MMN325919	Financial Services Regulation						X					X							x
	MMN327060	Fundamentals of Financial Technology			X	X						x		x				X		
	MMN327046	Research Methods for Finance																		
	MMI226820	Data Visualisation				x	x							x		x				
	MMI226822	Software Development for Data Science		x	x						x			x		x		x		
	MMI226824	Artificial Intelligence and Machine Learning		x							x			x	x					
	MMI226823	Data Ethics and Research Methods									x	x		x	x		x	x	x	
	MMN324976	Financial Risk Modelling					x				x							x		x
	MMN327047	Finance Research Project		X	X				X	X			X	X		X	X	X		

	Modules		Programme Outcomes											
	Code	Title	D1	D2	D3	D4	D5	D6	E1	E2	E3	E4	E5	E6
SCQF LEVEL 11	MMN326566	Bank Operational Risk Management	x	X	x	X			X	x		X		x
	MMN325919	Financial Services Regulation		x	x				x	x	x	X	x	x
	MMN327060	Fundamentals of Financial Technology	x	x	x		x		x	x	x	X	X	
	MMN327046	Research Methods for Finance												

	MMI226820	Data Visualisation	x	x	X	x	x		x	x	x		X	
	MMI226822	Software Development for Data Science	X						x	x	x	X	X	X
	MMI226824	Artificial Intelligence and Machine Learning	X	X		x	x		x	x	x	x	x	x
	MMI226823	Data Ethics and Research Methods	X	X	x	x	x	x	x	x	x	x	X	X
	MMN324976	Financial Risk Modelling	x	x		x				x		x		x
	MMN327047	Finance Research Project	X	X		X		X	X	X	X	X		

ASSESSMENT LOADING MATRIX for MSc in Financial Technology

SCQF Level 11										
Module Code	Module Title	Trimester	Credits	Submission Week(s)	Assessment Weighting					
					Cw 1	Cw 2	Cw 3	Exam1 (Exams Office)	Ex2 (Exams Office)	Ex3 (Class Test)
MMN326566	Bank Operational Risk Management	A	15		40					60
MMI226824	Software Development for Data Science	A	15		50	50				
MMI226824	Artificial Intelligence and Machine Learning	A	15		50	50				
MMI226822	Data Ethics and Research Methods	A	15		30	70				
EXIT AWARD:										
SCQF Level 11										
Module Code	Module Title	Trimester	Credits	Submission Week(s)	Assessment Weighting					
					Cw 1	Cw 2	Cw 3	Exam1 (Exams Office)	Ex2 (Exams Office)	Ex3 (Class Test)
MMN325919	Financial Services Regulation	B	15		50	50				
MMN327060	Fundamentals of Financial Technology	B	15		50	50				
MMN327046	Research Methods for Finance	B	15		40	60				
MMI226820	Data Visualisation	B	15		30	70				
MMN324976	Financial Risk Modelling	B	15		60					40
EXIT AWARD:										
SCQF Level 11										
Module Code	Module Title	Trimester	Credits	Submission Week(s)	Assessment Weighting					
					Cw1	Cw 2	Cw 3	Exam1 (Exams Office)	Ex2 (Exams Office)	Ex3 (Class Test)

MMN327047	Finance Research Project	C	45		100					
EXIT AWARD: MSc in Financial Technology										