Programme Specification ARO 034a

This specification provides a concise summary of the main features of the programme and of the learning outcomes that a typical student might reasonably be expected to achieve if they take full advantage of the learning opportunities provided. This document is published on the University website and will be a publicly available record of the named programme.

Section 1 Key Facts

<table>
<thead>
<tr>
<th>Awarding Body</th>
<th>University of Stirling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partner Institution</td>
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<tr>
<td>Programme Name</td>
<td>Financial Technology (Fintech)</td>
</tr>
<tr>
<td>Award</td>
<td>MSc</td>
</tr>
<tr>
<td>Faculty</td>
<td>Natural Sciences</td>
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<tr>
<td>Division (if applicable)</td>
<td>Computing Science and Mathematics</td>
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<td>UCAS Code (UG only)</td>
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<td>Programme Code</td>
<td>TDX44-FNT</td>
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<tr>
<td>Mode of Study</td>
<td>Full Time ☒ Part Time ☒ (if both please provide two Degree Programme Tables in the Outline Programme Structure)</td>
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<tr>
<td>Location/Method of Study</td>
<td>On Campus – UK ☒ On Campus – International ☐ Online ☐ Blended ☐</td>
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<td>Admission Points</td>
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<td>Length of Programme</td>
<td>1 Year</td>
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<td>Total Credit Value</td>
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<td>ECTS Credit Value</td>
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<tr>
<td>Relevant QAA Subject Benchmark</td>
<td>Masters Degree in Computing</td>
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<tr>
<td>Professional Body Accreditation</td>
<td>Name of accrediting body: Required for programme: No (delete as appropriate)</td>
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<td></td>
<td>Date of Accreditation: XX / XX / 20XX</td>
</tr>
<tr>
<td></td>
<td>Date of Renewal: XX / XX / 20XX</td>
</tr>
<tr>
<td>Programme Director</td>
<td>Andrea Bracciali</td>
</tr>
<tr>
<td>Advisor of Studies</td>
<td>Andrea Bracciali</td>
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Section 2 Overview

PROGRAMME SUMMARY

A comprehensive summary of the programme.

Financial Technology (Fintech) is the name given to the use of a range of computer technologies to provide new products and services across a range of financial sectors. It has been identified as a key growth sector for the Scottish economy and Edinburgh is already becoming a national fintech hub. A new industry group, Fintech Scotland has recently (27.9.17) been launched, backed by the First Minister, to promote Scotland as a centre of fintech excellence. Fintech is a broad term that applies to the use of advanced computer technology in banking, insurance, and investment. Many fintech companies are small start-ups to there is also an entrepreneurial aspect to the sector at the moment. It is important to note that fintech is not simply about the use of computers in finance. It is about disruptive change brought about by using the latest techniques from AI, data science and cryptography.

Programme Outline: The programme will be a one year, full time or two year, part time taught masters degree. It will consist of 120 taught credits and 60 credits for a research or development dissertation carried out either at the University or with a company. It will be taught jointly by the Division of Computing Science and Mathematics (CSM), with options from the Stirling Management School (SMS).

Students will be taught a mixture of computing technology, financial theory and entrepreneurship. The programme is designed to prepare students for a career in a technical role in fintech, either in a small company or a large financial institution. The fintech skills shortage is not just a shortage of programmers, there is a growing requirement for people with a specific fintech skillset and this programme is designed around that skillset.

The programme has been designed after consultation with banks and recruitment agencies and is based in part on the recent Scottish Fintech Strategy document from Scottish Enterprise. Its approach (and some of its content) is based on the already successful MSc Big Data.

PROGRAMME LEARNING OUTCOMES

Overarching Learning Outcomes
On successful completion of this programme, you should be able to:

1. Evaluate and implement solutions using a range of new technologies including mobile devices and data analytics tools.
2. Operate in the new and changing environment in which fintech will operate, including traditional financial institutions and disruptive startup companies.
3. Work consistently with relevant considerations of fintech, including security and privacy.
4. Evaluate the impact that new fintech technologies will have on different sectors and on current practice in a variety of institutions.
5. Be knowledgeable of relevant entrepreneurial skills for disruptive technology, from one or more of the following: new venture planning, business modelling, professionalism regulation and ethics in banking, and behavioural finance.
6. Use technology to disrupt traditional corporate finance and investment practice.

WHAT WILL I BE EXPECTED TO ACHIEVE?

Detailed Learning Outcomes
On successful completion of this programme, you should be able to:

Knowledge and Understanding:
1. Develop technical solutions using a range of modern computing technologies including
   a. Blockchain
   b. Machine learning and data analytics tools
   c. Coding using Python and Java
   d. Designing mobile applications with Android
2. Understand the business context of these technologies in banking and finance with specific focus on:
   a. New approaches to traditional banking operations such as lending and making payments
   b. Security and privacy issues
3. Understand how start up companies and new ventures in larger organisations work in high-tech fields which may disrupt large and established markets such as banking.

Intellectual, Practical and Transferable Skills and other attributes:
Students will be connected by
1. Students will gain an international perspective to understand the global financial markets.
2. Students will learn to communicate complex technical ideas from both computing and finance to audiences with varied backgrounds. They will need to be able to tell stories about customers, systems, data and business in a coherent way.
3. A strong ethical grasp of the issues around privacy, security and automated decision making will be developed by the students during the programme.

Students will be innovative by:
1. Students will learn creative problem solving skills to find the best applications for the technology and skills they have.
2. Students will learn to develop new applications and business models

Students will be transformed by:
1. Students will gain confidence working with new technologies and in challenging business environments such as start-ups. They will also learn how to handle the disruption that comes with applying new technologies in traditional industries.
2. Student will gain a deep understanding of the sensitivities and security requirements around the use of personal data in the banking and financial sectors with particular emphasis on the implications of new technology being introduced in those sectors. They will be able to apply that understanding when developing new technology and process.
3. A high level of personal motivation is required to succeed in fintech, with a willingness to embrace new ideas and win over people whose views are different.

HOW WILL I LEARN?
Outline of the teaching methods and approach to be used on the programme.

You’ll learn from lectures and practical labs during the first two semesters from September to April. After the spring exams, you’ll spend the summer carrying out a dissertation project. The project may be of your own design, or (where possible) as part of a placement or consultancy project for a company.

You can study the MSc Financial Technology (Fintech) full-time over one year or part-time over two years.
WHAT TYPES OF ASSESSMENT AND FEEDBACK CAN I EXPECT?

Outline of the assessment methods and approach to be used on the programme.

Assessment and Assessment Criteria

The programme will use the standard assessment methods of assignments and exams. Assignments will vary from subject to subject, with some technical assignments, some essay writing and some presentations.

All assessment will be suitable for the common marking scheme and will be set to reflect both the learning outcomes of the module and the attainment descriptors of the CMS.

Feedback on Assessment

Feedback will be provided as appropriate to the type of assignment. There will be no single model for feedback from assessment, but the emphasis will be on the skills required to perform well in assessment (and the real world domain that the subject covers) rather than the specific learning outcomes of the work.

Assessment Regulations

Highlight any exceptions to the assessment regulations for this programme

None

If you would like to know more about the way in which assessment works at the University of Stirling, please see the full version of the assessment regulations at: Postgraduate – Taught

WHAT WILL I STUDY?

Outline Programme Structure

The list below shows compulsory and option modules for this programme. Option modules are revised over time. More information about these requirements can be found in the relevant Module Descriptors.

The options available each year can be subject to change due to student demand and availability of teaching staff.

- Where an “Option list” is specified, you have a choice of which module to take at this point in the degree programme and these choices are listed below
- For year 1 and 2 where “Any Module” is used it means that you can choose from all modules available to the year group and you can see the full list by following these links:

Postgraduate

Year 1

Total year 1 credit value = 180
Compulsory credits = 140
Option credits = 40

Compulsory Modules

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Module Code</th>
<th>Credit</th>
<th>Semester</th>
<th>SCQF Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blockchain Technologies</td>
<td>ITNPFT1</td>
<td>10</td>
<td>1</td>
<td>11</td>
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<tr>
<td>Cyber Security</td>
<td>ITNPFT2</td>
<td>10</td>
<td>1</td>
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<tr>
<td>Contemporary Issues in Banking</td>
<td>BFIP036</td>
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<td>Data Analytics</td>
<td>ITNPBD6</td>
<td>20</td>
<td>2</td>
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<tr>
<td>Mobile Financial Applications</td>
<td>ITNPFT3</td>
<td>20</td>
<td>2</td>
<td>11</td>
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<tr>
<td>Dissertation Project</td>
<td>ITNPBD5</td>
<td>60</td>
<td>3</td>
<td>11</td>
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</table>
Option Modules – you may choose one of the following modules to take DELETE IF NOT REQUIRED

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Module Code</th>
<th>Credit</th>
<th>Semester</th>
<th>SCQF Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate Finance</td>
<td>INVP001*</td>
<td>20</td>
<td>1</td>
<td>11</td>
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<tr>
<td>Representing and Manipulating Data</td>
<td>ITNPBD2*</td>
<td>20</td>
<td>1</td>
<td>11</td>
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<tr>
<td>Professionalism, regulation and ethics in banking</td>
<td>BFIP019^</td>
<td>20</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Investment Regulation and Ethics</td>
<td>INVP005^</td>
<td>10</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Behavioural Finance</td>
<td>FINP006^</td>
<td>10</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Innovation Management</td>
<td>BUSP016^</td>
<td>10</td>
<td>2</td>
<td>11</td>
</tr>
</tbody>
</table>

* students select one of these two options
^ Either BFIP019 or two from: INVP005; FINP006; BUSP016

Part Time

Part time students study over two years and must take at least 20 credits in autumn and spring semester for each year. At the end of the two years, they must have taken 40 credits of compulsory modules plus 20 credits from the optional list for each semester. The dissertation project is carried out during the summer of the second year.

Key Features of the Programme (including what makes it distinctive)

The programme is responding to some very recent changes in the financial sector including the General Data Protection Regulations (GDPR, May 25th 2018) and the Payment Services Directive (PSD2, November 2017). The syllabus has been designed to give students the mixture of skills that employers are currently demanding in the fintech sector. The inclusion of New Venture Creation and Innovation Management make it a particularly strong offering in the market. The computing technology components are key to a good fintech CV and are updated every year to keep them at the forefront of technological development.

READING LIST

Required and Recommended Reading for the Programme


Section 3 Student Support

SUPPORT FOR STUDENT LEARNING

Induction
There is an induction lecture on the first day of Autumn semester, which is recorded for those who miss it. Students are also provided with a detailed student handbook that covers everything they need to know about the procedures and regulations of taking a degree at Stirling. Each student is assigned a personal tutor who is available throughout their studies to offer help, support and advice.

Study Skills Support
Student Learning Services are committed to providing comprehensive guidance on all aspects of effective and efficient learning. The ultimate aim of the service is to enable you to make the most of your academic studies at the University and for you to become an independent, successful learner during your time at the University of Stirling. This is facilitated through collaborative work with experienced tutors and by offering a variety of courses, workshops and tutorials.

All students, whatever stage of their academic studies, are welcome to use Student Learning Services. However the service may be particularly beneficial:

- In your first two years of study.
- If you are making the transition from college to Higher Education.
- If you have been out of education for some time.

What we are able to do:

- Advise you on academic skills relevant to your studies at University.
- Help you consolidate your previous learning and develop new learning strategies.
- Advise on action-plans to potentially improve grades.
- Suggest practical solutions if you feel overwhelmed by assignment work.
- Help you gain confidence in the transition to Higher Education.

More information can be found here: [http://www.stir.ac.uk/campus-life/learning-support/student-learning-services/](http://www.stir.ac.uk/campus-life/learning-support/student-learning-services/)

STEER is a University-wide Student Peer Support Scheme providing Mentors or Buddies for any Undergraduate or Taught Postgraduate student in their first year at the University of Stirling. The scheme aims to help you make the most of your time at the University and enable you to settle in as quickly as possible. More information can be found here: [http://www.steer.stir.ac.uk/index.php](http://www.steer.stir.ac.uk/index.php)

For Research Postgraduate Students the Stirling Graduate School as well as your own faculty will provide support. More information can be found here: [http://www.stir.ac.uk/graduateschool/current-pg-students/skills-development/](http://www.stir.ac.uk/graduateschool/current-pg-students/skills-development/)

Academic and Pastoral Support

Adviser of Studies: Advisers have an important role to play in enhancing your academic and personal development and are essential to ensuring you make the most of your time at university. Advisers provide a personalised point of contact for you to discuss academic concerns or queries within the
academic community. The general purpose of the role is to provide more in-depth advice on the academic options available to you and on the academic policies and regulations within the University. More information can be found here: http://www.stir.ac.uk/registry/advisers/

**Personal Tutor:** The role of a personal tutor is to help you feel part of the University community. They are a specific and consistent source of guidance, information and support for you throughout your studies. The tutor should be the your first formal point of contact for general academic guidance and pastoral support. More information can be found here: http://www.stir.ac.uk/tse/personal-tutor/

**Support and Wellbeing:** At university you may face non-academic issues where you need some expert help or guidance. There are lots of ways we can help you in your day-to-day life at University. Student Support Services provide a range of high-quality services to assist you during the course of your studies, help prepare you for life after graduation. We aim to enhance the student experience and help you to get the most out of your time at University. More information can be found here: http://www.stir.ac.uk/campus-life/support-and-wellbeing/

**Student Union:** you can also access support through the Students’ Union, more information can be found here: https://www.stirlingstudentsunion.com/representation/studentsupport/

**Accessibility and Inclusion**
We are committed to offering a service which is welcoming and supportive of the needs of all students. Our service takes into account the full range of needs you may have, in a wide variety of circumstances including - physical and mobility difficulties, sensory impairments, specific learning difficulties including dyslexia and autistic spectrum disorder as well as medical conditions and mental health difficulties. We can also support you if you have short-term, temporary impairments or other difficulties as a result of an accident, injury, illness or surgery. More information can be found here: http://www.stir.ac.uk/student-support/accessibility-amp-inclusion-service/

**Learning Resources**
You can find out more about the resources available to support your learning here: http://www.stir.ac.uk/campus-life/learning-support/

### Section 4 Programme Evaluation and Enhancement

**METHODS FOR EVALUATING AND IMPROVING THE QUALITY AND STANDARDS OF TEACHING AND LEARNING**

**Module Evaluation**
Module evaluations are carried out each year and are an important way of getting student feedback on the modules we teach. The University introduced a new programme of module evaluations in 2015 using the EvaSys system. We aim to evaluate every module we teach in every semester. You can find out more here: http://www.stir.ac.uk/registry/studentinformation/moduleevaluation/

**Programme Review**
Programmes are reviewed annually and on a 5 yearly cycle. You can get involved in a variety of different ways; by completing module evaluations, becoming a course representative and attending Student Staff Consultative Committees, or participating in the review process itself. You can find out more here: http://www.stir.ac.uk/academicpolicy/handbook/review-and-monitoring/

**External Examiner(s)**
Name of External Examiner: Dr Dharini Balasubramaniam
Institution: St Andrews University
*Please add as required.*
Section 5 My Future

**WHAT KIND OF CAREER MIGHT I GO ON TO?**

What career avenues does this qualification open up to the student?
The fintech sector is rapidly growing and demand for skills far outstrips supply. Jobs are found in two very different areas. Firstly there are the many start-up companies involved with blockchain, open banking and mobile payments. Secondly, there are the established large financial institutions, who are developing their own fintech offerings.

**WHAT STUDY ABROAD OPPORTUNITIES ARE AVAILABLE?**

None

**WHAT PLACEMENT OPPORTUNITIES ARE AVAILABLE?**

The three month summer dissertation project may be carried out as a placement with a company. We have had a good level of success placing students in placements in the current Big Data programme, and we expect this to continue.

**WHAT FURTHER STUDY OPTIONS ARE AVAILABLE TO ME?**

What programmes of study could the student go on to after successfully completing this one?

The programme is designed primarily as a pathway to a graduate level job rather than further study. However, it would be a suitable precursor to a PhD in fintech subjects such as Blockchain, security or analytics.

**WHAT OTHER INFORMATION DO I NEED TO KNOW?**

Information that should be displayed at module registration and/or on the Degree Programme Table webpages to help students understand any programme specific requirements or agreed exceptions to regulations. This could also include useful information that will enable a student to decide to take this programme, prepare for the programme, or that will be useful to them on completion of the programme e.g. professional recognition/accreditations etc.

Students without a computing science background will be accepted onto the course but are advised that self study before the course begins will be of great benefit to them. Students should contact the course/programme director for guidance to suitable resources.

Section 6 Admissions

**HOW DO I ENTER THE PROGRAMME?**

Admissions Criteria

Students will require a 2.2 or better in either a numerate subject or a business/financial subject. Relevant work experience will also be taken into consideration. For non-native English speakers, IELTS of 6.0 with 5.5 minimum in each skill are required.