MSc in Financial Mathematics
Programme Information
2022-2023

Maxwell Institute for Mathematical Sciences
Heriot Watt University and University of Edinburgh
All students registered for this programme are expected to have read and to be familiar with the contents of this Handbook.

**Disclaimer:** Every effort has been made to ensure the contents of this booklet are accurate at the time of printing. Unforeseen circumstances, however, may necessitate changes to the procedures, curricula and syllabuses described.

Heriot-Watt University is a Scottish charity registered under charity number SC000278
Contents

PART A: SCHOOL INFORMATION ................................................................. 5
A1. How to Use This Handbook ............................................................... 5
A2. Welcome and Introduction ............................................................... 5
A3. Globally Connected Learning ............................................................ 6
A4. Personal Tutors .............................................................................. 6
A5. Programme Overview .................................................................... 7
  A5.1 Introduction ............................................................................. 7
    A5.1.1 Programme Aims ................................................................. 7
    A5.1.2 Graduate Attributes .............................................................. 7
    A5.1.3 Enrolment ........................................................................ 7
    A5.1.4 Timetable ......................................................................... 8
    A5.1.5 Attendance ....................................................................... 8
    A5.1.6 Computer Facilities ............................................................ 8
  A5.2 Administration ........................................................................... 9
    A5.2.1 Programme Director ............................................................. 9
    A5.2.2 Programme Coordinators .................................................... 9
    A5.2.3 Programme Administration .................................................. 9
    A5.2.4 Wider support ................................................................ 9
    A5.2.5 Mitigating circumstances .................................................... 10
    A5.2.6 Temporary Suspension of Studies ...................................... 10
    A5.2.7 Withdrawing from study ..................................................... 10
    A5.2.8 Representation and feedback .............................................. 11
  A5.3 General information ................................................................ 11
    A5.3.1 Teaching accommodation and staff accommodation ............ 11
    A5.3.2 Communication between students and staff ....................... 11
    A5.3.3 Student mail ................................................................... 11
    A5.3.4 Finance ........................................................................... 12
  A5.4 Teaching and learning approach ................................................ 12
    A5.4.1 Core courses ................................................................... 12
    A5.4.2 Optional courses ................................................................. 13
    A5.4.3 Dissertation ..................................................................... 13
    A5.4.4 Attendance ...................................................................... 14
    A5.4.5 Combining work and study ............................................... 14
    A5.4.6 Coursework, cover sheets and group assignments .............. 14
    A5.4.7 Plagiarism ........................................................................ 15
    A5.4.8 Disability and Special Needs ............................................. 15
    A5.4.9 Canvas ............................................................................. 16
  A5.5 Dissertation ................................................................................. 16
    A5.5.1 General information ............................................................ 16
    A5.5.2 Role of the Academic Supervisor ........................................ 16
    A5.5.3 Assessment criteria .............................................................. 17
    A5.5.4 Dissertation format ............................................................. 17
  A5.6 Programme Structure ................................................................. 17
    A5.6.1 Programme induction and semester dates ......................... 17
      A5.6.1.2 Courses at Heriot-Watt University ............................... 18
      A5.6.1.3 Courses at the University of Edinburgh ...................... 18
    A5.6.2 Examinations .................................................................. 18
      A5.6.2.1 Dictionaries in examinations ....................................... 19
      A5.6.2.2 Calculators ................................................................ 19
      A5.6.2.3 Unauthorised material ................................................ 19
      A5.6.2.4 Re-assessment opportunities ..................................... 19
  A5.7 Assessment requirements ........................................................... 20
  A5.8 Individual course details ............................................................ 21

Page 3 of 27
PART A: SCHOOL INFORMATION

A1. How to Use This Handbook

This handbook provides you with:

- An overview of your programme, its structure and its courses.
- Contact information for key staff in your programme, subject and academic School.
- Details of support and resources available to you as a Heriot-Watt student.

Take time to look through the information provided, but also use it for reference if you are unsure of anything, if you want to contact someone, or if you want to find out more about any aspect of your studies. This Handbook is not just for your first week or two at University, nor is it something to be read once and discarded, you will find it useful to refer back to its contents in the coming weeks and months. If you can’t find the information you are looking for then you can ask your personal tutor.

All information is correct at the time the Handbook was produced.

A2. Welcome and Introduction

Welcome from the Principal and Vice Chancellor of Heriot-Watt University

I am delighted that you have chosen our unique and innovative University and have entrusted us with your education for the next few years. Heriot-Watt has been at the forefront of pioneering education and future thinking since 1821, and now more than 200 years on, we continue to lead the way in world class education as a distinctive, globally connected institution.

The global pandemic affected all of us, not least in how institutions delivered learning and teaching. You may have studied extensively online in the last year or two. Fortunately, we are now able to look forward to enhancing our on-campus learning and teaching, and offering an outstanding on-campus student experience at all of our global campuses, which is so valued by our students.

We have developed a unique approach to learning for this academic year called Globally Connected Learning, which blends on-campus teaching with online activities, support and resources to create a rich student learning experience. This will allow you to actively participate in the learning opportunities open to you and to engage with the global Heriot-Watt community, which spans five campuses in three countries.

The University is a community of people, with a purpose, and I would encourage you to seek out the opportunities that will enable you to further develop your individual sense of purpose to impact society. Many students and staff participate in creating their own ‘impact statement’ during the course of their studies, so do look out for this.

Throughout your studies you will have the opportunity to thrive both personally and academically, and I would encourage you to take advantage of all that our campuses, student societies and global community has to offer you. As a University committed to preparing you for your future, we’re delighted to offer opportunities for students to gain a global perspective, whether at a single campus or abroad. Our Go Global programme will continue to offer inter-campus transfers and exchanges across our campuses in Dubai, Scotland and Malaysia, allowing you to study, socialise or experience new cultures and places. We encourage you to connect with likeminded individuals across the globe and grasp every opportunity with both hands.

Our graduates are sought-after by global professions and industries all over the world. The very nature of a Heriot-Watt education is one that allows you to benefit from our research-informed approach, underpinned by our rich heritage and values. We’re dedicated to providing you with the confidence and purposeful leadership skills to be a global citizen, and the expertise to one day become a leader in your chosen field or career. Together we will help shape tomorrow to deliver benefits for all of society.
We look forward to supporting you as you grow and become a successful graduate of Heriot-Watt University. On behalf of our global OneWatt community, I’d like to take this opportunity to say: welcome to the family.

Professor Richard A. Williams OBE
Principal and Vice-Chancellor

A3. Globally Connected Learning

Our University teaching model is Globally Connected Learning, an approach that blends on-campus teaching with online activities, support and resources to create a rich student learning experience. Throughout your studies at Heriot-Watt you will be able to learn, interact and collaborate with your classmates and your academic teaching team through a range of inspiring activities and learning events.

If you are enrolled on our campus-based programmes you will be able to take full advantage of all that campus life offers. Our campuses are at the heart of our community and campus-based learning is core to the Heriot-Watt student learning experience. You will be expected to attend campus-based teaching and undertake any assessments or examinations scheduled on campus.

The specific balance of learning on individual courses will depend on the subjects you are studying and the activities and resources your course team have designed to help you engage effectively with your studies. Our approach is founded on a commitment to student partnership. That means you are encouraged to take responsibility for your own learning, to actively participate in the opportunities open to you. Your course team will support you to plan your time carefully to make the most of Globally Connected Learning.

We recognise that your studies will have been significantly disrupted in recent years as a result of the Covid pandemic. You can discuss any issues around your learning or your wellbeing with your personal tutor (see below) and with the University’s support services (see below).

A4. Personal Tutors

Every student has a member of academic staff allocated to them as a personal tutor who will be a key source of advice, guidance and support during your time at Heriot-Watt. Your personal tutor is your first point of contact if you need advice on any issue, both academic and non-academic, and can refer you to other support services where relevant for non-academic matters. Personal tutors provide a clear point of contact for you throughout your degree.

While social distancing is in operation, or if you are off campus, you can still arrange to meet your personal tutor remotely and contact them by email.

More details about personal tutoring can be found [here](#)
A5. Programme Overview

A5.1 Introduction

This handbook is a guide to what is expected of you on this **MSc in Financial Mathematics** programme, and the academic and pastoral support available to you. Please read it carefully. It will help you to make the most of your time on the Programme.

Useful information can also be found in the School of MACS website here: [https://www.macs.hw.ac.uk/students/ams/pg-programmes/](https://www.macs.hw.ac.uk/students/ams/pg-programmes/)

Students can also get advice on a range of Finance, Hospitality Services and Academic Registry issues from the Student Service Centre [https://www.hw.ac.uk/services/student-service-centre.htm](https://www.hw.ac.uk/services/student-service-centre.htm) which is situated in the Hugh Nisbet Building on Riccarton Campus (email: studentcentre@hw.ac.uk).

A5.1.1 Programme Aims

The aim of the Programme is to train individuals with a strong mathematical background in the theory and practice of financial mathematics. It should enable them to operate immediately and effectively as members of the financial community. In particular, the Programme will provide:

- a modern introduction to financial mathematics which will equip graduates with the necessary skills to commence work in any field in which finance is central, such as investment banking or asset management;
- the ability to understand the assumptions in the models used in pricing and hedging financial instruments, where they break down, and the mathematical sophistication required to follow the research literature.

A5.1.2 Graduate Attributes

As a student of Heriot-Watt University, you are part of our global community. You will meet new people, discover new interests, develop your life skills and enhance your employability and career prospects.

The University will provide you with opportunities to develop skills, qualities and academic abilities during your time as a Heriot-Watt student. These are known as the **Four Heriot-Watt Graduate Attributes**: Specialist, Creative, Global, Professional

Further information can be found at: [https://www.hw.ac.uk/services/academic-registry/quality/learning-teaching/graduate-attributes.htm](https://www.hw.ac.uk/services/academic-registry/quality/learning-teaching/graduate-attributes.htm)

A5.1.3 Enrolment

All student enrolment is completed online. You are responsible for ensuring your enrolment details are correct, and that you have enrolled for all courses that you wish to take. Information to assist with course selection will be provided during student induction in Welcome Week (5 - 9 September 2022). If you have any questions about enrolment, you should contact your personal tutor, or get in touch with university staff through the Student Portal. Course choices can be changed within the first two weeks of each semester. Information on how to do this will be provided during induction.

You must enrol for either the PG Diploma in Financial Mathematics or the MSc in Financial Mathematics. If you change your mind and wish to change programme you may only do so before 30 September by
completing a programme transfer form. Your personal tutor can provide guidance and advice on this process. International students should be aware that any programme changes will be notified to the UK Border Agency and this may have implications for your student visas.

No refunds of programme fees will be provided to students who leave the University without completing the programme for which they are registered for any reason (i.e. regardless of whether this departure is voluntary or because students have failed to qualify for the desired award).

A5.1.4 Timetable
Timetables can be found at: https://www.hw.ac.uk/students/studies/timetables.htm. Occasionally it is necessary to make adjustments to the timetable, such as rescheduling a class – all changes will be notified on the class Canvas pages or by email.

A5.1.5 Attendance
In order to achieve course and programme learning outcomes, students are expected to attend all scheduled course learning sessions (e.g. timetabled lectures, tutorials, lab sessions, etc). Should you have to miss a timetabled session due to ill health or other legitimate reasons, you should submit a self-certification or medical certification or an application for consideration of Mitigating Circumstances. https://www.hw.ac.uk/students/studies/examinations/mitigating-circumstances.htm

Students who fail to satisfy course attendance requirements may, after due warning, be disallowed from presenting themselves for examination in the course. https://www.hw.ac.uk/students/studies/record/attendance.htm

Coursework must be handed in by the stipulated dates, and students are required to see their personal tutors at agreed times. Students who fail to submit compulsory coursework may also be disallowed from presenting themselves for examination in the relevant courses.

All lectures and tutorials are compulsory and registers of attendance may be taken.

If you are absent from class due to illness for four days or less, you should complete a self-certification form, obtainable from the School Office, and return it to the School Office within a week of your return. If you are absent for more than four days, you must supply a medical certificate to the School Office within a week of your return.

Students on a Tier 4 Student Visa are required to attend the signing-in sessions in October, November, February, March, June, July and August. You must also attend the re-enrolment session in January. It is your responsibility to make sure that you attend these events. Failure to attend will mean that you will be reported to UKVI and your right to remain in the UK maybe removed.

A5.1.6 Computer Facilities
You will enrol as a user of the University computer network. This will give you an email account, and access to word-processing facilities and various packages which will be needed for some courses. Once you have completed on-line enrolment you will receive a letter which confirms your enrolment. Along with this letter are details of your University user name and password. Your user name will also be your email address eg user name ab111 will have the email address ab111@hw.ac.uk

You will be credited with a printing quota for use over the year. While an additional allocation may be made in the summer for those proceeding to the MSc, you are advised to use your quota sparingly.

Abuse of the computing facilities will result, at the very minimum, in a ban from the facility.

Information about our Information Services can be found at: http://www.hw.ac.uk/is/guides/getting-started.htm
A5.2 Administration

The administration for the Programme is handled by the Department of Actuarial Mathematics and Statistics at Heriot-Watt University, which is part of the School of Mathematical and Computer Sciences. The other entities involved with the Programme are the School of Mathematics at the University of Edinburgh, and the School of Social Sciences at Heriot-Watt University. Each department has a Programme Coordinator responsible for the courses run by that department.

A5.2.1 Programme Director

Dr Abdul-Lateeef Haji-Ali  
Department of Actuarial Mathematics and Statistics  
School of Mathematical and Computer Sciences  
Heriot-Watt University  
Email: a.hajiali@hw.ac.uk  
Abdul-Lateeef acts as the main point of contact for students who require advice or assistance for both academic and non-academic matters.

A5.2.2 Programme Coordinators

Professor Istvan Gyongy  
School of Mathematics  
The University of Edinburgh  
Email: I.Gyongy@ed.ac.uk  
Istvan deals with any queries about courses taught by the School of Mathematics at the University of Edinburgh.

Dr Bing Xu  
School of Social Sciences  
Heriot-Watt University  
Email: B.Xu@hw.ac.uk  
Bing coordinates those parts of the course taught by the School of Social Sciences, Heriot-Watt University.

A5.2.3 Programme Administration

General enquiries can be made through the Student Portal.

A5.2.4 Wider support

For more general problems, your personal tutor is available to offer support, advice, and help if you run into difficulties, be they personal or academic. Tutors will offer assistance as far as they can, and can put you in touch with appropriate University support services. The University offers a wide range of support services for students and you are encouraged to make use of these to make your time at Heriot-Watt as enjoyable and trouble-free as possible.

The Chaplaincy welcomes all students from any background and is available for prayer, counselling and support and social events. See: www.hw.ac.uk/chaplaincy; email: chaplaincy@hw.ac.uk

Student Support and Accommodation provides student counselling and welfare support. See https://www.hw.ac.uk/students/health-wellbeing/edinburgh/faith/chaplaincy.htm

University Health Service is available to all students. You can make an appointment to see a doctor by telephoning 0131 451 3010 or dentist by telephoning 0131 451 3080. See http://www.hw.ac.uk/students/health-wellbeing.htm

International Student Advisors are available to provide advice and support with visas, studying in Scotland and any other general support and advice to international students. See: https://www.hw.ac.uk/students/international/uk.htm
Heriot-Watt Students Union. See http://www.hwunion.com/

Careers Service has in-house advisers with considerable expertise in the actuarial and financial job market and can assist with job applications and preparing for interviews. See https://www.hw.ac.uk/study/why/careers-advisory-service.htm or contact Lindsay Wilson (telephone 0131 451 3391 or email L.Wilson@hw.ac.uk).

Academic Skills Service provides coaching and counselling to assist students to work smarter. See https://www.hw.ac.uk/services/is/skills-development/study-support.htm

See also the A-Z guide for students: https://www.hw.ac.uk/uk/students/doc/A-ZStudentGuide.pdf

A5.2.5 Mitigating circumstances

If you experience any mitigating circumstances which affect your ability to complete your assessments you must notify us as soon as possible.

You should read the University’s Policy on Mitigating Circumstances in Relation to Assessment at: https://www.hw.ac.uk/students/studies/examinations/mitigating-circumstances.htm and then complete the application form. This form along with any relevant evidence (e.g. medical certificates) should be submitted online. Evidence submitted after your results have been published cannot be taken into account.

If you think you qualify as a Special Needs student (if for example you are registered with a disability) please bring this to the attention of the Programme Director as soon as possible.

It is very important that if you have a problem you seek help as soon as possible, and notify us of the situation. The Examiners will always take such circumstances into account where appropriate, but the later the notification, the less scope there is to do so. Notification of mitigating circumstances must be given before the Exam Board meeting is held. Late notification will normally mean that no consideration can be taken of the circumstances.

Any information which you provide to us will be used solely by the Board of Examiners to determine how best to help you, given the circumstances. We will not share the information with other students or services of the University without your consent.

A5.2.6 Temporary Suspension of Studies

If students are unable to study for a considerable period (i.e. more than one diet) they should inform their personal tutor, so that such periods of non-study can be taken into consideration when reviewing the students’ continued registration on the Programme.

If students continue to be unable to study for a specific known period (for example, a semester or a year) due to other external factors (for example, maternity), then they should seek to temporarily suspend their studies.

If you intend to apply for a suspension of studies, please discuss this with your personal tutor. You can find useful information here: https://www.hw.ac.uk/students/studies/leaving/temporary-suspension-studies.htm

A5.2.7 Withdrawing from study

Students may find that the Programme is not suitable for them and they may decide to withdraw from it. Students should think very carefully before they do withdraw. If they do so, it may well be that sometime later they decide that they would like to continue with their studies.
Before making a final decision about withdrawing, students should discuss their situation with their personal tutor.

The University has a “Thinking of Leaving” Service which you can use. Please see more information here: https://www.hw.ac.uk/students/studies/leaving.htm where you can find a range of information and advice that can help you make the final decision.

A5.2.8 Representation and feedback
Great emphasis is put on student feedback to improve the student experience, particularly with respect to the delivery of courses. Feedback is a two-way process. Feedback is provided to students in a variety of ways in order to help you to reflect on and to evaluate your progress and to assist you to take steps to improve before the next relevant assessment. For most courses, students can expect feedback on assessed coursework within three teaching weeks of the coursework due date.

All students on the MSc should feel free to discuss aspects of the running of the Programme directly with the Programme Director. However, issues which are relevant to the whole of the class should normally be raised with the Programme Director through a student representative sitting on the AMS Department’s Postgraduate Staff Student Liaison Committee.

Two Class Representative will be elected at the start of the year. Class Reps will engage with the Programme Director to monitor and review all aspects of the Programme and act as the main communication channel between students on the Programme and the Programme Director. If an issue emerges with the Programme, the Programme Director will ask the Class Reps to discuss the issue with the class and report back.

Feedback is sought from students also via various surveys so that the School can continue to enhance the student learning experience. Your feedback is valued by the School, so please be sure to provide feedback whenever it is sought.

A5.3 General information

A5.3.1 Teaching accommodation and staff accommodation
In person classes may be held in any teaching rooms on campus. Students on other postgraduate programmes will join the class for certain courses. Arrangements for any online classes will be announced on the course Canvas pages.

The academic staff of the Department of Actuarial Mathematics and Statistics all have their offices in the Colin Maclaurin (CM) building.

A5.3.2 Communication between students and staff
The Programme Director and lecturers will regularly communicate with you by email. All emails will be sent to your Heriot-Watt email address (e.g. abc123@hw.ac.uk) and NOT to any personal email address you may have.

It is your responsibility to find out what arrangements have been made and what information has been sent to you. You are expected to check your email inbox regularly. You should also check Canvas regularly for announcements and updates.

Students should communicate with academic and administrative staff via approved Heriot-Watt University internal channels (e.g. official Heriot-Watt email and telephone, MS Teams and Canvas). Students should NOT use personal social media profile (e.g. Facebook, Instagram, Twitter, etc.) or other personal channels for any communications with staff (e.g. personal mobile use for calls, text / WhatsApp, personal emails, etc.).

A5.3.3 Student mail
Mail arriving for all students in the School is put in pigeon holes in the School Office.
A5.3.4 Finance

Students are reminded that tuition fees are due prior to or at enrolment and are payable immediately. Anyone who is experiencing difficulty in meeting their repayments should contact the Student Service Centre immediately. The University has a strict policy regarding the payment of invoices and students who fail to meet this will have their student privileges withdrawn and may in some cases be subject to legal proceedings.

If you are experiencing difficulties in meeting your payments it is essential you contact the Student Service Centre at the first available opportunity. You may also wish to seek advice from your personal tutor.

If you are paying by recurring card plan the payments will be taken in six, equal monthly installments on specific dates. This option is not flexible and one missed payment will result in the agreement being revoked and the remaining balance will be due for immediate payment.

No student with outstanding debt will be permitted to graduate from the University, and in some cases students with debt may be prevented from continuing to the MSc dissertation stage of the programme.

A5.4 Teaching and learning approach

The study programme for the MSc in Financial Mathematics consists of:

- 8 compulsory courses including two special topics courses,
- 8 optional courses,
- 1 dissertation.

The Programme has been designed to introduce students to most areas of mathematics required in the financial industry. In order to ensure a complete coverage of the mathematics and the financial context there are a range of taught courses. There are also a number of special topics, of which the student must take four (two in each special topics course), which give the opportunity for more specialised training in specific areas. These will be guided reading, assessed by a combination of presentations and written reports. The final component is a dissertation, which will give the opportunity to work on a more substantial problem of relevance.

A5.4.1 Core courses

The core courses deal with the technical knowledge and practical skills that are essential for anyone who is to graduate with an MSc in Financial Mathematics. There are eight core courses:

Semester 1

- Stochastic Analysis in Finance (20 credits) F71SF
- Financial Markets (15 credits) C31FM
- Discrete-Time Finance (10 credits) F71DT
- Derivatives Markets (7.5 credits) F71DM
- Special Topics 1 (7.5 credits) F71TA

Semester 2

- Credit Risk Modelling (15 credits) F71CM
- Derivative Pricing and Financial Modelling (15 credits) F71DP
- Special Topics 2 (7.5 credits) F71TB

Brief descriptions of these courses and links to the Degree Regulations and Programmes of Study can be found in Section 8, and Section 9 for Special Topics.
A5.4.2 Optional courses

The optional courses allow each student to specialise in a range of skills that suits his/her own career development. Your personal tutor will discuss with you the appropriate choice of optional courses based on your background and progress on the Programme to date. A student is allowed to change courses, at any time **up to the end of week two** of the Semester, **providing** that the student has not taken any assessment on that course.

The list of optional courses is given below:

Semester 1

- Statistical Methods (15 credits) F71SM
- Statistical Inference (7.5 credits) F71ST

(Statistical Inference and Statistical Methods cannot be taken both as options.)

Semester 2

- Portfolio Theory (15 credits) F71PT
- Stochastic Control and Dynamic Asset Allocation (10 credits) F71SC
- Optimisation Methods in Finance (10 credits) F71OM
- Numerical Probability and Monte Carlo (10 credits) F71NP
- Numerical Techniques for PDEs (7.5 credits) F71NT
- Data Analytics & Time Series Analysis (15 credits) F71DA

The number of options that students must take depends upon the number of credits that each course carries. The total number of credits for options courses must be between 22.5 and 30. This range ensures that students have full flexibility in their choice of options. The usual procedure is that students create a priority list and then take the smallest number of preferred courses that exceed the minimum of 22.5 credit credits.

Brief descriptions of the optional courses and links to the Degree Regulations and Programmes of Study can be found in Section A5.8.2.

A5.4.3 Dissertation

During the period from June to August, candidates for the MSc work on a project on an approved topic and write a dissertation based on this work. The project gives the student the opportunity to apply skills developed earlier in the Programme to real problems in Mathematical Finance.

Projects are either done jointly with a sponsoring organisation or as an academic project aimed at developing practical skills relevant for the financial industry. Academic projects are organised as group projects, i.e. groups of about 4–5 students work on different variants of the same core topic with the same supervisor.

Students are strongly encouraged to seek the opportunity to do their project in collaboration with an outside partner such as a bank or other financial institution. A wide variety of organisations provide work-based projects through the Scottish Financial Risk Academy (SFRA). More detailed information will be provided in Semester 2. Here is an exemplary and non-exhaustive list of different types of dissertations:

- A **subject review** surveys a chosen area, summarising the research literature and providing an overview of its development, importance, methodology and outstanding problems.
- A **theoretical essay** describes, in considerable depth, some piece of mathematical theory relevant to finance. Papers in research journals are often very terse and assume a lot of prior
knowledge on the part of the reader; an acceptable project could be to explain a recent paper, making its results more accessible and putting them in context.

- A **numerical project** would describe and implement one or more numerical methods for pricing, hedging or reserving for derivatives or portfolios, and perhaps aim to measure how well it performed using real or simulated data.
- A **data-based project** would analyse market data, fitting them to suitable models and drawing conclusions.
- A **software project** could aim to develop software for specific financial problems, perhaps as part of a placement with a financial institution.

**A5.4.4 Attendance**

In order to achieve course and programme learning outcomes, students are expected to attend all scheduled course learning sessions (e.g. timetabled lectures, tutorials, lab sessions, etc, either in person or online). Should you have missed a timetabled session due to ill health or other legitimate reasons, you should submit a self-certification or medical certification or an application for consideration of Mitigating Circumstances [https://www.hw.ac.uk/students/studies/examinations/mitigating-circumstances.htm](https://www.hw.ac.uk/students/studies/examinations/mitigating-circumstances.htm).

Students who fail to satisfy course attendance requirements may, after due warning, be disallowed from presenting themselves for examination in the course.

During the dissertation period students will have meetings with their supervisor. These meetings are compulsory. Unless granted a leave of absence, students attending in-person in Edinburgh are expected to stay in the area during the dissertation period.

Students on a Tier 4 Student Visa must attend the signing-in sessions in October, November, February, March, June, July and August. They must also attend the re-enrolment session in January. It is their responsibility to make sure that they attend these events. Failure to attend will result in a report to UKVI and the right to remain in the UK may be removed.

**A5.4.5 Combining work and study**

It should be stressed that the Programme is full-time. You should expect to spend 40 hours per week attending classes, working on the delivered material and preparing assignments for submission. Unless you manage your time well, there will be weeks (particularly towards the end of Semester 2) when you will have to work significantly more than 40 hours. As a consequence, it is recommended that students do not take any employment, **including internships during the summer dissertation period**.

Full time students should not work more than 16 hours per week during term or during the summer months when the MSc dissertation is prepared. Students can take a part-time job only under the condition that such an activity will not adversely affect their performance on the MSc. Any part-time job which would exceed 16 hours per week should be discussed with the Programme Director.

**A5.4.6 Coursework, cover sheets and group assignments**

The coursework requirements—case studies, essays, and other projects—vary between courses, as does the balance of the methods of assessment. The weighting of coursework and examinations for individual courses is given in the information for each course. Most pieces of coursework will be submitted online. For any coursework submissions to be made on paper, please note the following:

1. All coursework for courses delivered by the School of Mathematics at the University of Edinburgh must be submitted with a completed cover sheet, stapled in the top left corner, and handed to the Programme Secretary, JCMB Room 5211. Completed work **must not** be handed directly to any other member of staff or submitted by any other means. Cover sheets are available in JCMB 5211 (and on-line) and have a number of functions.
   a. They provide fields for the student’s name and matriculation number
   b. They contain an “own work declaration” relevant in cases of suspected plagiarism
c. They allow comments on the coursework to be communicated to the lecturer.
d. They enable the coursework mark and feedback to be returned to the student.

Until a completed cover sheet has been provided, the work will not be considered to have been submitted.

2. For the School of Mathematical and Computer Sciences courses at Heriot-Watt University, coursework should be posted in the AMS coursework box situated near the student office on the first floor of the Earl Mountbatten Building, EM 1.25. A completed cover sheet, available from perspex holders above the coursework box, should be stapled to the top left-hand corner.

3. Coursework for courses delivered by the School of Social Sciences at Heriot-Watt University should be submitted to the School Office on the first floor of the Mary Burton Building, MB 1.23. A completed cover sheet, available from MB 1.23, must be stapled to the top left-hand corner.

All students must adhere to deadlines for the submission of work. Work handed in late will incur a penalty. Please see below details on Heriot-Watt University’s coursework submission policy:

- **No individual extensions** will be given students. The policy applies to **all coursework** (other than midterm tests), **including dissertations**.
- If students have mitigating circumstances which have prevented them from submitting their coursework on time, they should try to submit their work **within 5 working days of the deadline** and submit a mitigating circumstances application.
- Students who submit after the deadline **but within 5 working days of the deadline** will be awarded 0.7 x (awarded coursework mark).
- Coursework submitted more than five days late will be awarded a mark of zero.

### A5.4.7 Plagiarism

The University has a strict policy on Plagiarism – passing off as one’s own the ideas or writing of another. All students should be familiar with the University’s policy on plagiarism: [https://www.hw.ac.uk/students/studies/examinations/plagiarism.htm](https://www.hw.ac.uk/students/studies/examinations/plagiarism.htm)

Plagiarism undermines every academic principle. Plagiarism is cheating and the Department, the School, and the University treat it very seriously indeed. This is relevant for all students and has implications for coursework, exams and the writing of MSc dissertations. The sanctions for plagiarism range from the discounting of the plagiarised work, the course or dissertation completely, withholding of the degree or Diploma concerned, or ultimately to expulsion from the University.

Anyone indulging in plagiarism of any kind can expect no sympathy or understanding from the University. Typically plagiarised work is discounted and will normally result in the student failing the relevant course.

We will automatically assess work which we feel is plagiarised, the system is extremely powerful in employing the Internet to identify source documents. Copying text verbatim from any electronic source (or book or journal article that is available electronically) without attribution will be identified as plagiarism.

If you have the slightest doubt about any aspect of this matter and of how your own work relates to it, you must discuss it with the Programme Director before submitting any work.

### A5.4.8 Disability and Special Needs

Some students may have a form of disability or have special needs. Examples include students with hearing, eyesight problems or physical disabilities. We are very happy to make special arrangements to help you as much as we can to make your year here a successful one.

If you do think there is something that we can help with then you should first make contact with Student Wellbeing ([https://www.hw.ac.uk/uk/students/health-wellbeing/edinburgh/disability.htm](https://www.hw.ac.uk/uk/students/health-wellbeing/edinburgh/disability.htm)).

The special needs adviser is also a useful person to contact during the year for some problems that might arise during the year, such as if you break a bone.
A5.4.9 Canvas

Each course based at Heriot-Watt University will have on-line material available at the University’s Virtual Learning Environment (Canvas) which can be found at https://canvas.hw.ac.uk. You will have access to information for all the courses for which you are enrolled.

A5.5 Dissertation

A5.5.1 General information

The dissertation gives students the opportunity to make use of the knowledge and skills developed on the programme, either by working on a real mathematical finance problem within an external organisation, or by working on an academic project.

Prior to the final assessment of the taught component of the MSc programme, all students are considered as MSc candidates. Following the Board of Examiners meeting in early June, students who complete the taught component at MSc level proceed to the dissertation stage of the MSc programme. The award of the MSc degree thereafter depends solely on the achievement of a dissertation mark of at least 50%.

It is the responsibility of each MSc candidate to prepare a dissertation on a subject chosen by agreement with a member of staff who will act as an Academic Supervisor. Normally, the projects are organised as group projects, i.e. groups of about 4-5 students work on different variants of the same core topic with the same supervisor. Dissertation topics will be agreed by mid-May or earlier. Detailed work will be carried out during the months of June, July and August, with sufficient time being allocated to writing the dissertation. In some cases the research for the dissertation will involve working with an outside organisation for at least part of the summer months.

Generally, full-time postgraduate students are required to be in Edinburgh for the duration of the Programme, unless specifically granted a leave of absence. It is not recommended to submit a dissertation early in order to return home prior to the end of the Programme. Completing a dissertation in less than the time available is very likely to have a strong adverse effect the standard of work and presentation.

If commercial confidentiality requires that a dissertation be treated as confidential, this can be arranged by informing the MACS School Office at the time of submission. Confidential dissertations will be read by the Academic Supervisor and examiners, and will not be available for reference.

You are strongly advised to keep a back-up draft of your dissertation and not to use a USB stick for this purpose since they are easily lost or damaged. No compensation or extension will be given for work or data lost by students.

A5.5.2 Role of the Academic Supervisor

The Academic Supervisor will give advice on the subject area, relevant literature, presentation format, methodology, structure of the dissertation, and scheduling of the work to be done. The final responsibility for the dissertation always lies with the student. Supervisors are not expected to read and amend chapters, but they may require periodic progress reports and sample chapters. The responsibility for the quality and content of a dissertation lies with the author of the dissertation.

Academic staff acting as Academic Supervisors cannot be expected to be available at all times, especially during the summer period, although staff will provide back-up facilities during their absence. Meetings should be arranged between Academic Supervisors and students at regular intervals, as appropriate. These meetings are primarily the initiative of the student. The frequency of contact with Academic Supervisors depends on the wishes of the individual student and Academic Supervisor, but students should try to discuss progress with their Academic Supervisors at least once every 2 or 3 weeks, with more frequent discussions in the early stages. In the case of projects based in an external organisation, Academic Supervisors may visit the students in the organisation.
Students may ask their Academic Supervisors to read a draft of part of the dissertation, but it is up to the Academic Supervisor's professional judgement as to how much of the dissertation he or she is willing to read. An Academic Supervisor cannot examine a dissertation before it is formally submitted and any comments which an Academic Supervisor makes on a draft are provisional in that the Board of Examiners may come to a decision which differs from that of the Academic Supervisor.

A5.5.3 Assessment criteria

All dissertations are expected to conform to the following standards:

- The dissertation must add to the understanding of the dissertation subject.
- The dissertation must show awareness of the relevant literature.
- The dissertation must contain relevant analysis: an informed description of a problem is not sufficient.
- The dissertation must be presented using a satisfactory standard of English.

Students should immediately inform their Academic Supervisor and the Programme Director of any factors that will adversely affect their ability to work on their dissertation topic. Extenuating circumstances will be taken into account by the Board of Examiners, but this information must be available prior to the meeting of the Board.

A5.5.4 Dissertation format

Dissertations should consist of the following:

- Title page with your NAME, EXAM NUMBER, PROGRAMME TITLE, DISSERTATION TITLE and YEAR
- Abstract
- Acknowledgements
- Own work declaration (signed and dated)
- Table of contents
- Main text (including introductory chapter and final chapter on conclusions and/or recommendations)
- Appendices (optional)
- Bibliography

The main text of the dissertation must not exceed 35 pages, based upon a 12-point font size and 1.5-line spacing. The main text referred to here does not include such things as tables, graphs, figures, appendices and computer code. Dissertations must be type set on white A4 paper only. It may be printed either single- or double-sided. The following minimum margins must be observed.

<table>
<thead>
<tr>
<th>Left 30mm</th>
<th>Right 15mm</th>
<th>Top 15mm</th>
<th>Bottom 20mm</th>
</tr>
</thead>
</table>

The pages in the main text, appendices and bibliography must be numbered consecutively.

A5.6 Programme Structure

A5.6.1 Programme induction and semester dates

Programme Induction details at Heriot-Watt University:

Please follow this link for information on enrolment, induction and other matters for new students:

https://www.hw.ac.uk/uk/students/new-students/uk.htm

Programme Induction details at the University of Edinburgh:

Please follow this link for information on welcome week and induction activities:
A5.6.1.2 Courses at Heriot-Watt University

Concerning the courses given at Heriot-Watt University, the following semester dates apply.

https://www.hw.ac.uk/study/apply/uk/academic-calendar.htm

A5.6.1.3 Courses at the University of Edinburgh

Concerning the courses given at the University of Edinburgh, the following semester dates apply.

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 – 15 September 2022</td>
<td>Welcome Week</td>
</tr>
<tr>
<td>19 September 2022</td>
<td>Semester 1 starts / Teaching block 1 starts</td>
</tr>
<tr>
<td>21 October 2022</td>
<td>Teaching block 1 ends</td>
</tr>
<tr>
<td>24 October 2022</td>
<td>Teaching block 2 starts</td>
</tr>
<tr>
<td>TBC</td>
<td>Graduations</td>
</tr>
<tr>
<td>2 December 2022</td>
<td>Teaching block 2 ends</td>
</tr>
<tr>
<td>5 – 11 December 2022</td>
<td>Revision</td>
</tr>
<tr>
<td>12 – 23 December 2022</td>
<td>Examinations</td>
</tr>
<tr>
<td>23 December 2022</td>
<td>Semester 1 ends</td>
</tr>
<tr>
<td>23 December 2021</td>
<td>Winter teaching vacation starts</td>
</tr>
<tr>
<td>24 December 2022 – 3 Jan-</td>
<td>University closed</td>
</tr>
<tr>
<td>ary 2023</td>
<td></td>
</tr>
<tr>
<td>13 January 2023</td>
<td>Winter teaching vacation ends</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBC</td>
<td>January Welcome</td>
</tr>
<tr>
<td>16 January 2023</td>
<td>Semester 2 starts / Teaching block 3 starts</td>
</tr>
<tr>
<td>17 February 2023</td>
<td>Teaching block 3 ends</td>
</tr>
<tr>
<td>20 February 2023</td>
<td>Flexible Learning Week</td>
</tr>
<tr>
<td>27 February 2023</td>
<td>Teaching block 4 starts</td>
</tr>
<tr>
<td>7 April 2023</td>
<td>Teaching block 4 ends</td>
</tr>
<tr>
<td>10 – 21 April 2023</td>
<td>Spring teaching vacation</td>
</tr>
<tr>
<td>24 – 30 April 2023</td>
<td>Revision</td>
</tr>
<tr>
<td>1 – 26 May 2023</td>
<td>Examinations</td>
</tr>
<tr>
<td>26 May 2023</td>
<td>Semester 2 ends</td>
</tr>
<tr>
<td>29 May 2023</td>
<td>Summer teaching vacation starts</td>
</tr>
<tr>
<td>TBC</td>
<td>Graduations</td>
</tr>
</tbody>
</table>

A5.6.2 Examinations

Students must attend all examinations. The Registry will give details of the location of each examination once this is known. Information on the form of the examination will be given for each course. It is the student’s responsibility to check all relevant examination timetables.
For Heriot-Watt University examinations, please see the Registry web page https://www.hw.ac.uk/students/studies/examinations.htm

It is important that students do not make any travel arrangements until the final examination timetable has been published. However, please note that changes to the final timetable may still be required after it has been published due to circumstances beyond our control.

Students who do not attend an examination will be deemed to have failed. If there are special circumstances relating to the non-attendance, a Mitigating Circumstances form and appropriate documentation must be submitted. Students will not be excused from the examinations because of holiday plans. It is very important that you notify the university as soon as possible of any mitigating circumstances (such as illness or death of a close relative) which could adversely affect your studies and/or examination performance.

In the case of illness, a medical certificate must be supplied alongside a Mitigating Circumstances application. The Examiners will always take such circumstances into account where appropriate, but the later the notification, the less scope there is to do so. Notification of mitigating circumstances must be given before the end of the examination diet concerned.

Late notification will normally mean that no account can be taken of the circumstances. With regards to submission of project work, students are required to take reasonable precautionary measures to keep their work in progress safe such as regular backups of computer files.

Information on graduation can be found at: https://www.hw.ac.uk/uk/students/studies/graduation.htm.

A5.6.2.1 Dictionaries in examinations

No student is permitted to take any dictionary into an examination without written permission. The only exception to the policy is in the case of individual students who had been assessed by the University's Disability Service as requiring access to a translation dictionary.

A5.6.2.2 Calculators

Where a calculator is required for the completion of an examination, a student may use any basic scientific calculator, except the following: graphics calculator, programmable calculator and a calculator which features text storage or retrieval facilities, see https://www.hw.ac.uk/students/doc/approvedcalculatorguidance.pdf

A5.6.2.3 Unauthorised material

For closed book examinations (eg, those held in person on campus), you must not have any unauthorised electronic devices or pre-printed materials in the examination room. Cheating in an examination is treated very seriously by the University. If you do have any material relevant to the exam which you have brought in by mistake, you must hand it over to an invigilator before the start of the examination. Invigilators will carry out checks on authorised materials and calculators.

A5.6.2.4 Re-assessment opportunities

Students will be able to be re-assessed in a maximum of 3 courses.

A student who has been awarded a Grade E or a Grade F in a course may be re-assessed in that course. A student who has been awarded a Grade D in a course may be re-assessed in that course in order to proceed to, or be eligible to receive the award of, Masters.

If you have already passed all courses at D Grade or above but have not qualified for progression to the MSc (eg, because your credit-weighted average over the taught courses is lower than 50%, or because you do not have sufficient credits at grades A-C) you may resit the exam in up to three courses where you
achieved no more than a D grade at first attempt in order to improve your performance and proceed to
the MSc.

You must take the resit examinations at the next available opportunity. For most students this will be in
the next academic session - December 2023 and/or April/May 2024. Only one resit opportunity will be
permitted. All reassessment is based on examination results only, even in courses which include assessed
coursework.

If you are required to be re-assessed before you are able to progress to the MSc Dissertation and if you are
in the UK on a Tier 4 Visa, the University is obliged to inform the UKVI that you will not be continuing with
your project in the Summer of 2023 and therefore your visa will be cancelled and you will be expected to
leave the UK as soon as possible after the release of your results.

You have to resit exams at the Edinburgh campus.

Special arrangements may apply where a student has presented mitigating circumstances in relation to the
first attempt. See the relevant section later in this handbook for more information.

Students who achieve the standards required to progress to the MSc following reassessment will be invited
to return to the University in summer 2024 to undertake MSc project work. We do not normally offer MSc
supervision at other times of the year.

Students who fail to meet the standards required for the PG Diploma following reassessment may be
awarded the PG Certificate in Financial Mathematics provided they have met the requirements
below.

A5.7 Assessment requirements

The University operates Heriot-Watt Assessment and Progression System (HAPS) which specifies minimum
progression requirements. Schools have the option to apply progression requirements above the minimum
University requirement, which are approved by the Studies Committees. Students should refer to the pro-
gramme specific information on progression requirements. This information is detailed below.

To determine the overall assessment of the taught component, courses are weighted. Courses can have
weightings of 20 credits, 15 credits, 10 credits and 7.5 credits. The total weight of the core courses is 97.5.
Students must choose optional courses having a total weight between 22.5 and 30 credits.

The overall mark for the taught component of the Programme is the credit weighted average over courses
(core and optional courses). Sufficient conditions for the various awards that can be made are set out in
the table below.

Upon completion of the taught component of the Programme, any student satisfying the conditions set
out in the Taught Assessment Regulations will be permitted to proceed to the dissertation.

Students can be permitted one re-assessment opportunity in a maximum of three taught courses. For more
details please see Section A5.6.2.4 above or contact the Programme Director.

Progression & Award Criteria

Students can register for a Masters or Diploma in Financial Mathematics. Students registered for the MSc
degree need to satisfy certain progression criteria, enabling them to proceed onto the Dissertation. If they
fail to meet these criteria, given below, they will graduate with a Diploma or Certificate, according to the
circumstances.
<table>
<thead>
<tr>
<th>Degree Level</th>
<th>Taught component</th>
<th>Dissertation</th>
</tr>
</thead>
</table>
| **MSc with Distinction** | • At least 120 credits plus dissertation.  
 • Credit weighted average ≥70% over all taught courses.  
 • All taught courses at grades A-C. | Dissertation at grade A. |
| **MSc with Merit** | • At least 120 credits plus dissertation.  
 • Credit weighted average ≥60% over all taught courses.  
 • All taught courses at grades A-C. | Dissertation at grade A-B. |
| **MSc** | • At least 120 credits plus dissertation.  
 • Credit weighted average ≥50% over all taught courses.  
 • All taught courses at grades A-D.  
 • At least 75 credits of taught courses at grades A-C. | Dissertation at grade A-C. |
| **Diploma with Distinction** | • At least 120 credits.  
 • Credit weighted average ≥70% over all taught courses.  
 • All taught courses at grades A-C. | N/A |
| **Diploma** | • At least 120 credits.  
 • Credit weighted average ≥40% over all taught courses.  
 • All taught courses at grades A-E.  
 • At least 75 credits of taught courses at grades A-D. | N/A |
| **Certificate** | • At least 60 credits.  
 • Credit weighted average ≥40% over 60 credits of taught courses at grades A-E. | N/A |

**A5.8 Individual course details**

**A5.8.1 Core courses**

Brief details for the core courses are listed below, including the number of teaching hours and delivery period. For details of the syllabus and recommended texts for a particular course, please use the link for that course.

*Stochastic Analysis in Finance*
Aim: This course will provide and develop the key mathematical ideas which are used in derivative pricing. By spending a significant proportion of time on this particular topic it is hoped that the students develop a good understanding of the mathematics. This will provide a rigorous framework for the derivative pricing course enabling students to understand where the assumptions in the models break down. Assessment: Stochastic Analysis in Finance will be assessed by 95% exam and 5% assignments. https://www.macs.hw.ac.uk/students/ams/courses/f71fs-stochastic-analysis-in-finance/

Discrete-Time Finance
(10 credits, semester 1)
Aims: To introduce the basic probabilistic ideas and results needed for the later stochastic process and derivative pricing courses, in a discrete time setting. By the end of the course students will be expected to understand discrete martingale theory, its relationship with financial concepts such as arbitrage. Assessment: Discrete-Time Finance will be assessed by 95% exam and 5% assignments. http://www.macs.hw.ac.uk/students/ams/courses/f71dt-discrete-time-finance/

Financial Markets
(15 credits, semester 1)
Aims: The course is designed to give students a critical understanding of financial markets, the nature of assets traded in them, and the price-setting process. The course concentrates on equity and bond markets. Assessment: Financial Markets will be assessed by 20% mid-semester coursework and 80% end of semester exam. https://www.hw.ac.uk/documents/pams/201920/C31FM_201920.pdf

Derivatives Markets
(7.5 credits, semester 1)
Aims: This course provides an introduction to the traded and over-the-counter derivatives markets. Assessment: Derivatives Markets and Derivative Pricing & Financial Modelling will be jointly assessed by 80% exam and 20% coursework in semester 2. http://www.macs.hw.ac.uk/students/ams/courses/f71dm-derivatives-markets/

Derivative Pricing & Financial Modelling
(15 credits, semester 2)
Aims: The aim of this model is to study the application of the Black-Scholes model to the range of derivative securities encountered in the market, and to the term structure of interest rates. The principle tool will be the equivalent martingale measure. Links between derivative prices and PDEs will be indicated but solution of PDEs will be covered elsewhere. Discrepancies between the Black-Scholes model and market data will be described, and alternative models presented. Assessment: Derivatives Markets and Derivative Pricing & Financial Modelling will be jointly assessed by 80% exam and 20% coursework in semester 2. http://www.macs.hw.ac.uk/students/ams/courses/f71dp-derivative-pricing-and-financial-modelling/

Credit Risk Modelling
(15 credits, semester 2)
Aims: This course will introduce students to quantitative models for measuring and managing credit risk. It also aims to provide students with an understanding of the credit risk methodology used in the financial industry and the regulatory framework in which the credit risk models operate. Assessment: Credit Risk Modelling will be assessed by 100% exam. http://www.macs.hw.ac.uk/students/ams/courses/f71cm-credit-risk-modelling/

A5.8.2 Optional courses
Brief details for optional courses are listed below, including the number of teaching hours and delivery period. For details of the syllabus and recommended texts for a particular course, please use the link for that course.
Statistical Inference
(7.5 credits, semester 1)
Aim: To provide postgraduate students with a broad knowledge of the principal areas of mathematical statistics and statistical methods widely used in actuarial science and finance. Students should have a good grounding in probability before commencement of this course.
Assessment: Statistical Inference will be assessed by 100% exam.
http://www.macs.hw.ac.uk/students/ams/courses/f71st-statistical-inference/

Statistical Methods
(15 credits, semester 1)
Aim: To provide postgraduate students with a broad knowledge of the principal areas of mathematical statistics and statistical methods widely used in actuarial science and finance.
Assessment: Statistical Methods will be examined by 20-40% coursework and 60-80% exam.
http://www.macs.hw.ac.uk/students/ams/courses/f71sm-statistical-methods/

Numerical Techniques for Partial Differential Equations
(7.5 credits, semester 2)
Aim: To introduce students to numerical techniques for solving PDEs. In particular we study finite difference methods for the diffusion equation and other parabolic problems such as the Black-Scholes equation.
Assessment: Numerical Techniques for PDEs will be assessed by 100% exam.
http://www.macs.hw.ac.uk/students/ams/courses/f71nt-numerical-techniques-of-partial-differential-equations/

Optimization Methods in Finance
(10 credits, semester 2)
Aim: This course will demonstrate how recent advances in optimization modelling, algorithms and software can be applied to solve practical problems in computational finance.
Assessment: Optimization Methods in Finance will be assessed by 50% continuous assessment and 50% exam.
http://www.macs.hw.ac.uk/students/ams/courses/f71om-optimization-methods-in-finance/

Portfolio Theory
(15 credits, semester 2)
Aim: To allow students to understand the theory of preference using utility theory and how this can be applied to selecting optimal portfolios. To show how portfolio selection models can be extended to become pricing models. To allow students to understand the basics of CAPM and APT.
Assessment: Portfolio Theory will be assessed by 20-40% coursework and 60-80% exam.
http://www.macs.hw.ac.uk/students/ams/courses/f71pt-portfolio-theoryf71ah-financial-economics-1/

Numerical Probability and Monte Carlo
(10 credits, semester 2)
Aim: The course deals with a rigorous introduction to Monte Carlo methods, and numerical methods to find solutions to stochastic differential equations. These methods are immensely important to understanding financial options price sensitivities (Greeks), and so applications to the techniques discussed will be to finance. Students will be expected to understand both the theoretical content, but also to be able to implement numerical techniques in a programming language such as Matlab.
Assessment: Numerical Probability and Monte Carlo will be assessed by 80% exam and 20% coursework.
https://www.macs.hw.ac.uk/students/ams/courses/f71np-numerical-probability-and-monte-carlo/

Stochastic Control and Dynamic Asset Allocation
(10 credits, semester 2)
Aim: The course introduces students to control theory and its applications in finance and economics, and it shows the connections between the following fields: controlled dynamical systems, optimization, non-linear PDEs.
Assessment: Stochastic Control and Dynamic Asset Allocation will be examined by 100% exam. 
http://www.macs.hw.ac.uk/students/ams/courses/f71sc-stochastic-control-and-dynamic-asset-allocation/

Data Analytics & Time Series Analysis
(15 credits, semester 2)
Aims: This course aims to provide a good understanding of the concepts and methods used in time series analysis and advanced techniques for data analytics.
Assessment: Data Analytics & Time Series Analysis is assessed by 70% exam and 30% coursework.

A5.9 Special Topics 1 & 2

Special Topics consists of two synoptically linked courses (Special Topics 1 and 2) with a total of 15 credits. They are taken as guided reading courses in the last few weeks of each semester as announced in the programme's timetable. In each semester, students choose two topics from a list which may vary from year to year. The topics are assessed by two oral presentations and two short written essays, respectively. The combined weight of the topics is 15 credits, each topic is worth 3.75 credits. Topics in Semester 2 are provided by industry.

The links to Special Topics:

Special Topics I: http://www.macs.hw.ac.uk/students/ams/courses/f71ta-special-topics-1/
Special Topics II: http://www.macs.hw.ac.uk/students/ams/courses/f71tb-special-topics-2/

A5.10 Facilities

A5.10.1 University library

The library facilities of the University of Edinburgh which are most likely to be relevant for the Programme are at

- Noreen and Kenneth Murray Library, King’s Buildings, West Mains Road, Edinburgh EH9 3JF
- Main Library, George Square, Edinburgh, EH8 9LJ.

The library of Heriot-Watt University is located at

- Edinburgh Campus, Cameron Smail Library, Gait 12.

A5.10.2 Careers service

The University of Edinburgh and Heriot-Watt University both have Careers Services that offer advice, information and practical help in all matters relating to the development of students' future work or study plans. The Careers Service offices of the University of Edinburgh (see http://www.careers.ed.ac.uk/) are at

- Weir Building, West Mains Road, Edinburgh EH9 3JY, Tel: 0131 650 5773, Email: careers@ed.ac.uk.
- 33 Buccleuch Place, Edinburgh, EH8 9JS, Tel: 0131 650 4670, Email: careers@ed.ac.uk

The Heriot-Watt University Careers Service (see https://www.hw.ac.uk/study/why/careers-advisory-service.htm) is located at

- HWU Campus, Hugh Nisbet Building, +44 (0)131 451 3391, careers@hw.ac.uk
A5.10.3 Travel

The easiest way to plan your journey to the campus is to use the Traveline Scotland Journey Planner (http://www.travelinescotland.com/welcome.do), which uses up-to-date public transport timetables.

Use our detailed campus maps to help you find your way around the buildings on Heriot-Watt campus (https://www.hw.ac.uk/uk/edinburgh/map.htm) and on University of Edinburgh campus (https://www.ed.ac.uk/maps/maps).

Disabled access
Visit our pages on the AccessAble website (https://www.accessable.co.uk/heriot-watt-university) for details of disabled access features at our Edinburgh Campus. The guides describe your journey into and throughout the campus buildings – accommodation, library, catering, teaching spaces etc – and includes photographs of the features covered.

Bicycle
There are safe cycle routes to the Heriot-Watt Campus from the city centre, Edinburgh Park and the west. These either follow the main roads or the cycle paths along the Union Canal. You can plan your journey on the CycleStreets website (http://www.cyclestreets.net/journey/to/EH14+4AS/).

Bus
Lothian Buses (http://lothianbuses.com/) offers local bus services 25, X25, 34, 35, 45, 63 and N25/N34 (night bus) to the Heriot-Watt Campus. Service 25 is the most frequent, leaving the city centre every 10 minutes during the day, and every 15 minutes after 8.00pm. The journey takes about 30–40 minutes from the city centre.

For travelling from Heriot-Watt campus to the University of Edinburgh's King's Buildings campus, a recommendable option is to take bus 25 to ‘opp Salvation Army Hall’, then switch to bus 38, and finally get off at ‘before Mayfield Road’, which takes less than one hour including walking to King’s Buildings. For further options see Lothian Buses.

Single fares are £1.80 and a day ticket costs £4.50. With a single fare you are not allowed to change buses. For travelling between Heriot-Watt campus and the University of Edinburgh's King's Buildings campus you need to change busses, so a day ticket may be cheaper than buying single fares.

Note that exact money is required for Lothian Buses (with the exception of Airlink) if paying using cash, but you can pay for tickets using your mobile phone (http://lothianbuses.com/apps) or by contactless card payment. Regular travellers to the campus should consider getting a Ridacard (http://lothianbuses.com/tickets/ridacard).
PART B: UNIVERSITY INFORMATION

B1. Programme and Course Content

The content of our programmes and courses is reviewed annually to make sure it is up-to-date and relevant. Individual courses are occasionally updated or withdrawn. This is in response to discoveries through our world-leading research; funding changes; professional accreditation requirements; student or employer feedback; outcomes of reviews; and variations in staff or student numbers. In the event of changes the University will consult and inform students in good time and will take reasonable steps to minimise disruption.

B2. Our Values

At Heriot-Watt, we have an established set of values that help up to nurture innovation and leadership and show our commitment to continuous development in all our activities. They are:

- **Belong** to a diverse, inclusive and international community working together across boundaries and cultures
- **Inspire** curiosity to learn and find solutions that transform lives
- **Collaborate** by working in partnership to shape the future whilst taking responsibility for our own actions
- **Celebrate** excellence and take pride in the achievements of our students, staff and alumni

Find out more about the [Heriot-Watt Values](#) and what they mean to us.

B3. Student Partnership Agreement

Heriot Watt University and the Heriot-Watt Student Union (UK), Heriot-Watt Student Association (Malaysia) and Heriot-Watt Student Council (Dubai) work in partnership to develop a Student Partnership Agreement (SPA) each year. The Agreement identifies the main, agreed priorities for working in partnership each academic year and outlines an associated action plan.

Heriot-Watt University has a long and proud tradition of student engagement in institutional governance and decision-making and the Student Partnership Agreement sets out our ambition to continue to work in partnership across all of our campus locations, with the aim of increasing engagement with the institution, enhancing the student experience and engendering a sense of belonging to the University community.

The Student Partnership Agreement is available [here](#).

B4. University Regulations

Heriot-Watt has a detailed set of rules that govern how the University operates, these are the University's [Ordinances and Regulations](#). Ordinances are set by the Court, which is the University’s governing body, outline how the University is governed. University regulations provide the framework for the University’s academic work and the education of our students and they define the policies, procedures and support outlined in the [Quick Finder Guide to Heriot-Watt University](#) section of this Handbook.

B5. Your Student Portal

The Student Portal brings together your services and relevant information in one place. Below is a summary of the services available to you via the portal:

- **Office 365 suite**: through single sign-on, all of your Office 365 services will be accessible through the Portal.
• Library: whether you want to search for books or view your loans & reservations, the Portal allows you to do this on your phone or desktop.
• Canvas: access your courses here, including announcements, tasks and assignments.
• Student Information: all university-level regulations and policies relating to your studies can be found on the Portal.
• Campus and School News: the Portal enables the University to promote events and experiences which will help you develop your skills.
• Personalised: You can hide, add and move tiles on your dashboard.
• AskHWU: You can find everything you need to help you navigate your time at HWU through the new AskHWU search tile. Ask questions of the University and enquire directly with members of staff to get information about ID cards, student finance, confirmation of studies letters, exams, enrolment, Careers, Wellbeing Services and much more.
• Appointments: book appointments with a range of different services (Student Wellbeing Services, Careers, Finance etc.) through your student portal.

You can access your student portal [here](#).

**B6. Your Virtual Learning Environment**

Heriot-Watt’s Virtual Learning Environment (VLE) is called [Canvas](#). It is a vital learning and communication tool for you and your lecturers, so make sure you log in and check Canvas every day. For further support see the [Canvas Student Guides](#).

**B7. A to Z Guide: Essential Student Information**

This [A to Z guide](#) covers essential information about the support and resources available to you as a Heriot-Watt student.