1. **Title of the module**

BUSN9196 (CB9196): Programming for Finance in Python

1. **Division or partner institution which will be responsible for management of the module**

Kent Business School

1. **The level of the module (Level 4, Level 5, Level 6 or Level 7)**

Level 7

1. **The number of credits and the ECTS value which the module represents**

15 credits (7.5. ECTs)

1. **Which term(s) the module is to be taught in (or other teaching pattern)**

Spring

1. **Prerequisite and co-requisite modules**

None

1. **The courses of study to which the module contributes**

MSc Financial Technology

1. **The intended subject specific learning outcomes.  
   On successfully completing the module students will be able to:**

8.1 Demonstrate knowledge and understanding of the advanced concepts and theory within the field of finance and financial technology, and their application to a company’s financial decisions

8.2 Apply the research methodologies required to test and evaluate complex finance models

8.3 Demonstrate knowledge and understanding of complex theoretical and practical aspects of key areas of finance and financial technology

8.4 Demonstrate systematic knowledge and understanding of up-to-date empirical literature in the fields of finance and financial technology

8.5 Apply quantitative and statistical methods on financial data

1. **The intended generic learning outcomes.  
   On successfully completing the module students will be able to:**

9.1 Interpret complex financial data and perform quantitative analysis

9.2 Interpret and comprehensively evaluate the results obtained from quantitative analysis

9.3 Demonstrate advanced problem-solving skills

9.4 Analyse important and complex issues relevant to companies’ financial decisions

9.5 Conduct in-depth research in the area of finance and financial technology

1. **A synopsis of the curriculum**

This module will introduce students to Python, a programming language that has become the industry standard. Students will learn how to use Python in order to conduct financial and econometric analysis. Particular emphasis will be placed on programming for specific financial applications such as portfolio optimization, asset valuation, and derivatives pricing. Indicative topics include

* Data types and structures
* Input/output operations
* Data visualization
* Summary statistics
* Regression
* Optimization
* Valuation and risk
* Derivatives

1. **Reading list (Indicative list, current at time of publication. Reading lists will be published annually)**

* Y. Hilpisch, “*Python for Finance*”, 2nd edition, 2018, O’Reilly, ISBN 9781492024330
* S. Fletcher and C. Gardner, “*Financial Modelling in Python*”, 2010, Wiley, ISBN 9780470747896
* Y. Hilpisch, “*Derivatives Analytics with Python: Data Analysis, Models, Simulation, Calibration and Hedging*”, 2015, Wiley, ISBN 9781119037996
* M. Dawson, “*Python Programming for the Absolute Beginner*”, 3rd edition, 2011, Cengage, ISBN 9781435455009

1. **Learning and teaching methods**

* Total contact hours: 35
* Private study hours: 115
* Total study hours: 150

1. **Assessment methods**
   1. Main assessment methods

Individual Report – 2000 words (30%)

Individual Research Project – 3000-3500 words (70%)

13.2 Reassessment methods

100% coursework

1. **Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section12) and methods of assessment (section 13)**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |  |  |
| Lectures | X | X | X | X | X | X | X | X | X |  |
| Labs | X | X | X | X | X | X | X | X | X | X |
| Independent study | X | X | X | X | X | X | X | X | X | X |
| **Assessment method** |  |  |  |  |  |  |  |  |  |  |
| Individual Report | X | X | X | X | X | X | X | X | X |  |
| Individual Research Project | X | X | X | X | X | X | X | X | X | X |

1. **Inclusive module design**

The Division recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

1. **Campus(es) or centre(s) where module will be delivered**

Canterbury

1. **Internationalisation**

The module will use practical examples and financial datasets from international financial markets in lectures and labs. The programming tasks will focus on empirically implementing financial theories (such as global portfolio optimization, asset valuation, derivatives pricing) that apply in the context of global financial markets.

**DIVISIONAL USE ONLY**

**Revision record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

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| --- | --- | --- | --- | --- |
| Date approved | Major/minor revision | Start date of delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
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