

## MODULE DESCRIPTOR

### Module Title

Programming Concepts for Business Analytics

Reference	CMM201	Version	3
Created	June 2022	SCQF Level	SCQF 11
Approved	July 2018	SCQF Points	15
Amended	July 2022	ECTS Points	7.5

### Aims of Module

This module will introduce students to fundamental programming principles and concepts within the context of creating solutions for business analytics.

### Learning Outcomes for Module

On completion of this module, students are expected to be able to:

- 1 Critically appraise the use of Python, Jupyter, and appropriate packages in the context of data analytics.
- 2 Demonstrate a critical understand of core programming techniques and concepts.
- 3 Use existing libraries and coding techniques to perform data management, data analysis and data visualization tasks.
- 4 Apply programming skills to business decision making problems.

### Indicative Module Content

1. An overview of programming languages and tools typically used for developing Data Analytics and Visualisation solutions. 2. Introduction to Programming Logic and Design: The programming environment; object-oriented programming concepts; Variables and Simple Data Types; control structures (if, while); working with lists; working with strings; decision structures; dictionaries; input and output; functions; classes; files, interpreting errors and exceptions; testing and simple debugging of code 3. Reusing existing functionality: libraries and APIs: developing and/ or extending existing solutions within a business analytics context. 4. Tools and techniques for sharing software solutions.

### Module Delivery

Concepts and examples will be introduced in lectures. Practical skills will be developed through structured lab exercises and coursework exercises.

**Indicative Student Workload**

	Full Time	Part Time
Contact Hours	36	36
Non-Contact Hours	114	114
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	150
<i>Actual Placement hours for professional, statutory or regulatory body</i>		

**ASSESSMENT PLAN**

If a major/minor model is used and box is ticked, % weightings below are indicative only.

**Component 1**

Type:	Coursework	Weighting:	100%	Outcomes Assessed:	1, 2, 3, 4
Description:	A coursework demonstrating the ability to use Python to solve simple coding tasks, and to use Jupyter notebooks and third party-packages to solve data analytics problems.				

**MODULE PERFORMANCE DESCRIPTOR****Explanatory Text**

Component 1 (coursework) comprises 100% of the module grade. To pass the module, a D grade is required.

Module Grade	Minimum Requirements to achieve Module Grade:
<b>A</b>	A in Component 1
<b>B</b>	B in Component 1
<b>C</b>	C in Component 1
<b>D</b>	D in Component 1
<b>E</b>	E in Component 1
<b>F</b>	F in Component 1
<b>NS</b>	Non-submission of work by published deadline or non-attendance for examination

**Module Requirements**

Prerequisites for Module	None.
Corequisites for module	None.
Precluded Modules	None.

**INDICATIVE BIBLIOGRAPHY**

- 1 McKinney, W. (2013). *Python for Data Analysis*. (2th Ed.): O'Reilly
- 2 HARRISON M., PETROU T. (2020) *Pandas 1.x Cookbook: Practical recipes for scientific computing, time series analysis, and exploratory data analysis using Python*, (2nd Edition)
- 3 LUTZ, M. (2013). *Learning Python*. (5th Ed.): O'Reilly
- 4 PADMANBHAN T.R. (2016)*Programming with Python*. ELECTRONIC BOOK
- 5 HETLAND, M.L.,(2017) *Beginning Python : From Novice To Professional*. 3rd Ed, ELECTRONIC BOOK
- 6 PARKER J.(2017. *Python : An Introduction To Programming* ELECTRONIC BOOK
- 7 *Python Language Specification*: <https://www.python.org/>