



Faculty of Computer Studies

MU120 A: Open Mathematics (Part A)

Course Guide

MU120A: Open Mathematics (Part A)

Credit Points/ Credit Hours: 15/4

Pre-requisites:

EL111

Short Description:

This course will build your confidence in mathematics and will help you to incorporate mathematical thinking into your everyday life. It looks mathematically at matters of general interest including prices, earnings, health and music. Alongside mathematical skills, it will help you to develop communication and learning skills. Formal calculus is not included.

Aims:

This course aims to:

- Build students' confidence and help them to incorporate mathematical thinking into their everyday life.
- Enable students to look mathematically at matters of general interest including prices, earnings, health, music, art, maps, and motion.
- Develop the key skills of communication as well as students' own learning and performance.

Learning outcomes:

The Learning Outcomes of this course are given below.

A. Knowledge and understanding:

Understand some of the key basic mathematical and statistical ideas and principles in the areas of:

- A1. Handling data and modeling
- A2. Numbers and formulas
- A3. Graphs and diagrams

B. Cognitive skills:

- B1. Use techniques from the course to analyze and solve problems in a range of contexts
- B2. Reason logically using the mathematical and statistical ideas and principles of the course

C. Key skills:

- C1. Know and use basic vocabulary, notation, representations and conventions associated with elementary statistics, algebra, functions and graphs
- C2. Study independently, organizing study time and exploiting feedback
- C3. Communicate clearly and coherently, using appropriate structure, style and technical language
- C4. Use a graphics calculator for a variety of mathematical functions

D. Practical and/or professional skills:

- D1. Appreciate how mathematics pervades aspects of everyday life
- D2. Reflect on your own progress in the course, showing an understanding of learning how to learn

Course Structure:

The MU120A course consists of 9 units of study from 2 blocks.

Tale of Contents:

Block A

Unit 2: Prices

1. Are we getting better off?
2. A typical shopping basket
3. A statistical interlude- averages
4. Price indices
5. The Retail Prices Index
6. Using the RPI
7. Some mathematical themes

Unit 3: Earnings

- 1 Women in the workplace
- 2 Do men earn more than women?
- 3 How does occupation affect earnings?
- 4 Box-plots
- 5 Interpreting and representing earnings data
- 6 The growth of low pay
- 7 Changes in earnings

Unit 4: Health

- 1 Patterns

- 2 Chance
- 3 A pattern isn't proof
- 4 Two tales of variation

Unit 5: Seabirds

- 1 Statistical investigations
- 2 Monitoring seabird populations on Skomer
- 3 How well can you estimate?
- 4 Four case studies
- 5 Tackling your own investigation

Block B

Unit 6: Maps

- 1 Picturing the world
- 2 Mapping out a walk
- 3 Getting your bearings
- 4 Slopes and sizes
- 5 A calculated display
- 6 Representations and mathematics

Unit 7: Graphs

- 1 Every picture tells a story
- 2 Modeling a journey
- 3 On the right lines
- 4 A calculated plot

Unit 8: Symbols

- 1 Introducing symbols
- 2 Learning the language
- 3 Algebra and your calculator: formulas
- 4 A change of subject
- 5 Algebra
- 6 Some applications

Unit 9: Music

- 1 Musical pattern
- 2 musical scales, intervals and ratios
- 3 Playing in tune
- 4 Consolidation of Block B

Assessment:

The assessment for the MU120A course consists of the following 3 components:

- Tutor-marked assignments: 2 TMAs
- Quiz/Mid-term Assessment: 1 MTA
- Final Exam: 1 Final Exam

Grade Distribution:

The percentage grade distribution, for the above 3 components, is as follows:

- Tutor-marked assignments: 35%
- Quiz/MTA: 15%
- Final Exam: 50%

Course Calendar (indicative version):

There are 2 assignments, 1 midterm quiz and 1 final Exam associated with this course. Course result is determined on the basis of student's scores in assignments, midterm quiz and the final Exam. To be sure of passing the course the student needs to score at least 40% (at least 20% in the assignment and Quiz and at least 20% in the final exam) in the above 3 components and achieve an overall average score of 50%.

Study Week	Blocks	Course text	Other Components/notes	Practical Activates	Assignments /Assessments
1	REVIEW	Unit 1	VC 1145 Band 1	Listen AC2802 Band 1,2,3,4,5	
2	A	Unit 2			
3	A	Unit 2			
4	A	Unit 3			
5	A	Unit 3	VC 1154 Band 3	Listen AC3021 Band 1	
6	A	Unit 4	VC 1154 Band 4		
7	A	Unit 5			
8	B	Unit 6	VC 1154 Band 5		Quiz/MTA TMA1 due date
9	B	Unit 6		Listen AC3021 B and 2,3	
10	B	Unit 7	VC 1154 Band 6		
11	B	Unit 7			
12	B	Unit 8			
13	B	Unit 8			
14	B	Unit 9	VC 1230 Band 1	Listen AC 3021 Band 4	
15		Review		AC3022 Band1	TMA2 due date
16			Final Exam Period		