

MATH 1103 - Quantitative Skills and Reasoning (version 201614L)

Course Title Course Development Learning Support

Quantitative Skills and Reasoning Standard No

Course Description

This course focuses on quantitative skills and reasoning in the context of experiences that students will be likely to encounter. The course emphasizes processing information in context from a variety of representations, understanding of both the information and the processing, and understanding which conclusions can be reasonably determined. Students will use appropriate technology to enhance mathematical thinking and understanding. Topics covered in this course include: sets and set operations, logic, basic probability, data analysis, linear models, quadratic models, exponential and logarithmic models, geometry, and financial management.

Pre-requisites

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Appropriate Placement Test Score

Regstr. Co-requisites

Regstr. Co-requisites: None

True Co-requisites

True Co-requisites: None

Course Length

	Lecture Contact Time	Regular Lab Type	Reg. Lab Contact Time	Other Lab Type	Oth. Lab Contact Time	Total Contact Hrs
Contact Hours Per Week	3 hrs	N/A	0 hrs		0 hrs	3 hrs
Contact Min/Hrs Per Semester	2250 min		0 min		0 min	45 hrs

	Lecture Credit Hours	Lab Credit Hours	Total Credit hours	WLU
Semester Credit Hours	3	0	3	101.25

Competencies & Outcomes

Order Description

1 Fundamental Operations of Algebra; Linear & Quadratic Models; Graphs

Order	Description	Learning Domain	Level of Learning
1	Demonstrate quantitative skills and reasoning by solving linear and quadratic equations	Cognitive	Application
2	Evaluate system of linear equations	Cognitive	Application
3	Using technology, create models for data that is both linear and nearly linear and use the models to answer input and output questions in the context of applications	Cognitive	Application
4	Use quadratic and exponential models to answer input and output questions	Cognitive	Application

2 **Set & Logic: Sets; Set Operations; Logic; Reasoning**

Order	Description	Learning Domain	Level of Learning
1	Perform the set operations of complement, union, and intersection on sets, including Venn diagrams	Cognitive	Application
2	Compute truth tables for compound statements	Cognitive	Application
3	Compare and contrast between inductive and deductive reasoning	Cognitive	Analysis
4	Recognize valid and invalid arguments using logic	Cognitive	Analysis

3 **Probability & Statistics**

Order	Description	Learning Domain	Level of Learning
1	Calculate the number of permutations and combinations of finite number of objects taken at a time	Cognitive	Application
2	Compute simple probability, mutually exclusive events, independent events and conditional probability	Cognitive	Application
3	Calculate and interpret measures of central tendency and variation	Cognitive	Application
4	Utilize normal distribution to solve applied problems	Cognitive	Analysis
5	Use ratio, proportion, and percent to solve real-world application problems	Cognitive	Analysis
6	Apply fundamental counting principals and fundamental laws of probability to determine the probability of an event	Cognitive	Application
7	Read and interpret data presented in various forms, including graphs	Cognitive	Analysis
8	Create a scatter plot of data and determine whether it is best modeled by a linear, quadratic, or exponential model	Cognitive	Application

4 **Geometry: Perimeter, Area, and Volume**

Order	Description	Learning Domain	Level of Learning
1	Calculate the perimeter of geometric figures	Cognitive	Application
2	Calculate the area of geometric figures	Cognitive	Application
3	Calculate the volume of geometric figures	Cognitive	Application
4	Use area, perimeter, and volume to solve application problems	Cognitive	Application

5 **Financial Management: Interest; Present & Future Value**

Order	Description	Learning Domain	Level of Learning
1	Calculate simple and compound interest	Cognitive	Application
2	Solve annuity problems	Cognitive	Analysis
3	Construct an amortization schedule	Cognitive	Application

4	Compute finance charges on credit cards	Cognitive	Application
5	Solve application problems involving consumer finance	Cognitive	Application
6	Solve application problems using exponential and logarithmic functions	Cognitive	Application