



"El saber de mis hijos
hará mi grandeza"

UNIVERSITY OF SONORA

CENTRAL REGION UNIT
SCHOOL OF ECONOMIC AND ADMINISTRATIVE SCIENCES
DEPARTMENT OF ECONOMY
DEGREE IN BUSINESS AND INTERNATIONAL COMMERCE

Identification Data

Subject: Mathematics I	Formative Pillar: Basic
Teaching-learning process: Class-workshop	Pre-requirement: None
Hours per course: 5 (3t-2p)	Post-requirement: Mathematics II
Nature of subject: Mandatory	Credit Value: 8

Introduction

The Mathematics I course is the initial phase of the student in the management of logical and algebraic tools to acquire the skills and abilities needed to be able to represent the concepts in a numeric manner. Fundamental knowledge is built around logic of set and its management applied to the solution of problems within the areas of finance, economy, and administration. The ability for the algebraic representation in a linear and geometric manner of the concepts whether they are in a simple or matrix manner is the nodal point of the subject. The subject is practical, due to its nature, in the sense that dynamics should always be the solution to the problems presented according to the subject and because they are the initial point of acquisition of mathematical knowledge it gains a great importance of being a pre-requirement for the second semester.

General Objectives

The student will acquire mathematical tools and a certain ability in its management, in order to solve problems, present in the company, and will also acquire experience in some of the concepts used in the administrative area.

Specific Objectives

The student will understand the notions of set of properties and their notations and graphical representation, algebra of set, and some applications.
 The student will become familiar with the real numbers of its operations, rules, arithmetic, and geometric progressions, and he will become familiar with the algebraic expressions most frequently used.
 The student will become familiar with the characteristics of linear equation systems and different types of sets.
 The student will be familiar with the constitution of and geometric algebra.
 The student will become familiar with the matrix concept, and he will understand the fundamentals of algebra and its selected applications.

Proficiency units

1. Logic and language

- Terms and propositions
- Notions of interpretation
- Valid and universally valid expressions
- Formalize, axiomatize, symbolize, and mathematize.

2.- Algebra concepts

- Theory of set and real numbers
- Algebraic operations, first and second-degree equations
- Simultaneous equations

3.- Elements of linear algebra

- Elemental operations with matrixes and determinants.
- Matrix inversion

4.- Analytical geometry

Cartesian space, points, lines, equations, and their graphic representation.

Evaluation and accreditation criteria

Participation in a group discussion regarding problems presented, 20%

Application of 3 partial exams that will cover 40%

Assigned homework with problems of application, 20% Project presentation, 20%

Bibliography and other didactic resources

Anfossi Agustin /Flores Reyes, **Álgebra**, Progreso S. A. México 1994

Kleiman, Ariel / Kleiman, Elena K, **De Aplicaciones matemáticas a la administración**, Limusa, México, reimpresión 1993.

Budnick, Frank, S, **Matemáticas aplicadas**, McGraw Hill México, reimpresión 1994.

Frank, S, B, Matemáticas aplicadas a la economía y ciencias sociales, **McGraw Hill**

Joseph Kindle, **Geometria analítica**. Mcgraw Hill

Webber, **Matemáticas aplicadas a la economía**, CECSA

Chiang Alpha, **Métodos fundamentales de economía matemática**, McGraw Hill México 3ra ed. 1992

Teaching-learning strategies

Professor presentation

Group discussion regarding the course contents

Analytical summaries of reading

Presentation and solution of problems

Preparation of a project where all knowledge will be applied to the solution of a practical problem.

Recommended profile of the teacher responsible of the subject.

Academic Formation:

The professor should have a Bachelor's Degree in mathematical studies or a related major with a postgraduate degree and mathematical knowledge applied to the field of finance, economy, and administration.

Teaching experience.

To have performed as a Professor at all levels of higher education in the area of mathematics applied to finance, administration, and accounting.

Count with Good references within the teaching field

Academic and pedagogic formation:

Facility in the performance of the teacher-learning process.

Facility in group and individual communication with students.

Ability to use technology and didactic techniques (computer, image projection, projectors, overhead slides, slides, videos, etc.)

