

ΟΙΚΟΝΟΜΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ
ΣΧΟΛΗ ΟΙΚΟΝΟΜΙΚΩΝ ΕΠΙΣΤΗΜΩΝ
ΜΕΤΑΠΤΥΧΙΑΚΟ ΠΡΟΓΡΑΜΜΑ ΣΠΟΥΔΩΝ
ΣΤΗ ΧΡΗΜΑΤΟΟΙΚΟΝΟΜΙΚΗ ΚΑΙ ΤΡΑΠΕΖΙΚΗ

ΠΡΟΠΑΡΑΣΚΕΥΑΣΤΙΚΟ ΜΑΘΗΜΑ: *ΜΑΘΗΜΑΤΙΚΑ*
ΣΕΠΤΕΜΒΡΙΟΣ 2020

Διδάσκων: Καθηγητής Κωνσταντίνος Γάτσιος

Τηλ. Γραφείου: 210-8203334

Ηλεκτρονική Διεύθυνση: gatsios@aueb.gr

CONTENTS

- A. PRELIMINARIES
 - A.1 Exponents
 - A.2 Functions of a Single Variable
 - A.3 Functions of More than One Variable
 - A.4 Equations
 - A.5 Arithmetic and Geometric Series

- B. THE TIME VALUE OF MONEY
 - B.1 The Time Value of Money
 - B.2 The Future Value of Money
 - B.3 The Present Value of Money

- C. MATRICES
 - C.1 Matrix Operations
 - C.2 Transposes and Inverses
 - C.3 Determinants
 - C.4 Finding the Inverse Matrix
 - C.5 Cramer's Rule
 - C.6 Quadratic Forms

D. DIFFERENTIAL CALCULUS

D.1 Derivative

D.2 Rules of Differentiation

D.3 Differential and Derivative

D.4 Second and Higher Order Derivative

D.5 Taylor Series Expansion

D.6 Maxima and Minima for a Single Variable Function

D.7 Partial Derivatives

D.8 Total Differentials

D.9 Total Derivative

D.10 Maxima and Minima of Multivariable Functions

D.11 Optimization Subject to One Equality Constraint

D.12 Optimization Subject to Several Equality Constraints

E. INTEGRAL CALCULUS

E.1 Indefinite Integrals

E.2 Rules of Integration

E.3 Definite Integrals

E.4 Improper Integrals

F. DIFFERENTIAL EQUATIONS

F.1 First-Order Linear Differential Equations

F.2 Non-Linear Differential Equations of the First Order and First Degree

REFERENCES

Basic:

Chiang A.: *Fundamental Methods of Mathematical Economics*, 3rd Edition, McGraw-Hill

Watsham, J. T. and Parramore, K.: *Quantitative Methods in Finance*

Additional:

Silberberg E.: *The Structure of Economies: A Mathematical Analysis*, Mc Graw Hill

Hands D. W.: *Introductory Mathematical Economics*