1 Introduction

In this course we cover many topics in mathematics which are used in economic analysis. The formal prerequisite is a first year university course in calculus and linear algebra. The courses Math 135 and Math 136 offered at Macquarie University should offer adequate preparation, however hard work and some intellectual maturity can compensate for any missing background. Indeed hard work and some intellectual maturity are required even with adequate prior mathematics.

We will be using the text book by Alpha C. Chiang and Kevin Wainwright, [Alpha C. Chiang(2005)], Fundamental Methods of Mathematical Economics.

Usefull additional references include Introduction to mathematical economics by Edward T. Dowling, [Dowling(2001)]. This a Shaum’s outline and contains many worked examples. A calculus book such as Stewart’s Calculus, [Stewart(1999)], and a linear algebra book such as Anton’s Elementary linear algebra, [Anton(2000)] may also be useful as a reference. There is also a linear algebra textbook which can be downloaded from http://joshua.smcvt.edu/linearalgebra/.

2 Week by Week Outline

Week 1 Linear systems, Gauss-Jordan elimination
Week 2 Matrix algebra, vectors
Week 3 Geometry of linear transformations, determinants
Week 4 Cramer’s rule applications of matrices
Week 5 Eigenvalues and eigenvectors, diagonalization
Week 6 Foundations, limits, continuity, derivatives
Week 7 Optimization in one variable, Taylor Series
Week 8 derivatives, applications, partial derivatives
Week 9 applications of partial derivatives, Jacobian Derivatives
Week 10 Differentials Comparative-Static Analysis Total Derivatives
Week 11 Optimization in several variables, applications
Week 12 constrained optimization
Week 13 Non-linear programming
3 Assesment

There will be four homework assignments each worth 5%, an early semester online quiz worth 5%, a mid-semester test during the eighth week of class worth 20%, a late semester online quiz in week eleven, and a final exam at the end worth 50%.

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<th>Assessment</th>
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<th>Date</th>
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<tbody>
<tr>
<td>Homework 1</td>
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<td>Week 4</td>
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<td>Early Semester Online Quiz</td>
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<td>Late Semester Online Quiz</td>
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<td>Mid-Semester Test</td>
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Table 1: Econ864 Assessment 2012

References


