INSTITUT FÜR HÖHERE STUDIEN
INSTITUTE FOR ADVANCED STUDIES
Vienna

CONTINUING EDUCATION CENTER
TU VIENNA

M.Sc. Economics

Code:		**Type:**	M.Sc. 1st semester lecture series

Title:	Mathematics I

Lecturer:	Martin Meier

ECTS:	7	**Contact hours (per semester):**	24 á 90 min.

Semester:	Winter 2009/2010	**Frequency of the lecture:**	Twice a week 90 min.

Dates:	October 6th, 2009 until January 19th, 2010

Prerequisites:	Basic high school mathematics and knowledge of Math Camp

Learning objectives (What are the intended learning outcomes? Which skills will be acquired?):

Introduction to a mathematical way of thinking. Understanding and ability to apply abstract of concepts in set theory, logic and real analysis. Introduction to optimization and dynamic systems.

Content (Which professional competence and which contents will be imparted?):

- Set Theory
- Numbers and Functions
- Metric Spaces
- Differential Calculus
- Static Optimization
- Difference and Differential Equations
- Topological Spaces and Fixed Point Theorems

Teaching approach (Description of the learning and teaching methods):

Lectures, homework and discussion of homework solutions.

Workload (Optional: definition of workload (ECTS), divided in pre-modules (e.g. pre-readings), core-modules (contact hours), post-modules (e.g. case studies)):

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Language of instruction (Information on the language of teaching):
English

Obligatory literature (E.g. scripts, books, articles, cases, papers):
Alós-Ferrer, Carlos: Mathematics for Economic Theorists. Manuscript, University of Konstanz.

Additional literature (E.g. books, articles, cases, papers):
▪ De La Fuente (2000): Mathematical Methods and Models for Economists, Cambridge University Press. ▪ Sutherland (1993): Introduction to Metric and Topological Spaces. ▪ Magnus and Neudecker (1999): Matrix Differential Calculus with its Applications in Statistics and Econometrics. ▪ Perko (2001): Differential Equations and Dynamical Systems. ▪ Border (1985): Fixede Point Theorems with Applications to Economics and Game Theory.

Mode of examination (Mode of the examinations and tests (e.g. oral or written examination, lecture, homework, papers, class participation)):
Details to be announced; one final written exam will take place at the end of the semester.

Grading:
TBA

Special features: (E.g. excursion, guest speaker):
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Contact information:	**Office hours:**
Martin Meier, Ph.D. Department of Economics and Finance Institute of Advanced Studies Stumpergasse 56, A-1060 Vienna Phone: +43 1 59991 120 Fax: +43 1 59991 163 Martin.Meier@ihs.ac.at	By appointment

Course website:
https://cecnet.tuwien.ac.at/