INSTITUT FÜR HÖHERE STUDIEN
INSTITUTE FOR ADVANCED STUDIES
Vienna

CONTINUING EDUCATION CENTER
TU VIENNA

M.Sc. Economics

Code:		**Type:**	M.Sc. 3rd semester lecture series

Title:	Dynamic Optimization II

Lecturer:	Michael Reiter

ECTS:	3	**Contact hours (per semester):**	12

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

Dates:	October 5th, 2009 until November 16th, 2009

Prerequisites:	Dynamic Optimization I

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

The course will cover both the theory of dynamic programming and the practice of numerical dynamic programming. At the end of the course, the student should be able to solve, theoretically or numerically, the dynamic optimization problems that arise in economics.

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

Theory of dynamic programming

- Convergence based on the contraction property
- Convergence based on monotonicity.
- Stochastic Euler equations.
- Convex dynamic programming.

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Numerical dynamic programming

- Iteration in value space and in policy space.
- Discrete methods
- Continuous approximations to the value function.
- Carroll's method of endogenous grid points.

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

Lecture and group work.

Workload (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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M.Sc. Economics

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

Obligatory literature (E.g. scripts, books, articles, cases, papers):
Dimitri P. Bertsekas and Steven E. Shreve: *Stochastic Optimal Control: The Discrete-Time Case* Daron Acemoglu: *Introduction to Modern Economic Growth*, Chapters 6 and 16 Christoper Carroll: *Solving Microeconomic Dynamic Stochastic Optimization Problems*

Additional literature (E.g. books, articles, cases, papers):
A detailed list will be provided in the course.

Mode of examination (Mode of the examinations and tests (e.g. oral or written examination, lecture, homework, papers, class participation):
The grade will be based on a combination of homeworks and individualized programming project and a written final exam.

Grading:
▪ Homeworks (10%) ▪ Programming project (40%) ▪ Final examination (50%)

Special features (E.g. excursion, guest speaker):
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Contact information:	**Office hours:**
Dr. Michael Reiter Institute for Advanced Studies Department of Economics and Finance Room A 305 **Phone:** ++43-1-59991-154 **Fax:** ++43-1-59991-163 **E-mail:** michael.reiter@ihs.ac.at	Anytime, on appointment

Course website:
http://ihs.ac.at/~mreiter/m3 and https://cecnet.tuwien.ac.at/