University of Mainz

Mainz School of Management and Economics
Chair in Macroeconomics

University of Mainz • 55099 Mainz • Germany

Prof. Dr. Klaus Wälde
Research Professor in Economics
www.gfk.uni-mainz.de

Address:
Haus Recht und Wirtschaft II
Jakob-Welder-Weg 4
Office 01-111
Phone +49.6131.39-20143
klaus.waelde@uni-mainz.de
www.waelde.com

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University of Frankurt, University of Mainz

Graduate School of Economics, Finance, and Management

Syllabus Mathematical Methods Part 2

The course "Mathematical Methods" covers topology and probability theory in part 1 and difference and differential equations and dynamic optimization in part 2.

Days:
Mondays December 7 and 14
Time: 2.00 – 3.30 and 3:45 – 5.15 pm
Room: Campus Westend, House of Finance/DZ Bank
Monday, January 11
Time: 2.00 – 4.00 pm
Room: Campus Westend, House of Finance/DZ Bank
Friday, January 15
Time: 12:00 – 2:00 pm
Room: HZ 4, Hörsaalzentrum
Friday, January 22
Time: 12:00 – 1:30 and 1:45 – 3:15 pm
Room: HZ 4, Hörsaalzentrum
Friday, January 29
Time: 12:15 – 1:45 and 02:00 – 3:30 pm
Room: HZ 4, Hörsaalzentrum
Friday, February 5
Time: 12:15 – 1:45 and 02:00 – 3:30 pm
Room: HZ 4, Hörsaalzentrum
Monday, February 8
Time: 2:00 – 4:00 pm
Room: Campus Westend, House of Finance/DZ Bank

Final exam: Date and place to be announced, 60 minutes, covers part 2 only

All material for part 2 is based on „Applied intertemporal optimization". It can be downloaded from http://www.macro.economics.uni-mainz.de/233.php. There will be lectures only with some problem sets being announced during the lectures. Solutions to problem sets will be distributed in printed form in the lecture.

Contents of part 2

Deterministic worlds
     Difference equations and dynamic optimization: ch. 2.1, 2.2 and parts of (po) 2.5
     Dynamic optimization: ch. 3.1, po 3.2, 3.3 and po 3.4
     Differential equations: ch. 4.1, po 4.2, po 4.3, po 4.4
     Dynamic optimization: 5.1, 5.3, 5.4, 5.5 and po 5.6. ch 6.1 and 6.2

Stochastic worlds
     Stochastic difference equations: ch. 7.4.1
     Dynamic optimization: ch. 8.1, po ch. 9.1, 9.2 and po 9.5
     Stochastic differential equations: ch.10.1, 10.2, 10.3, 10.4, 10.5
     Dynamic optimization: ch.11.1, 11.2, 11.3 and 11.5