Integration Week Economics 2019

September 2 - 6, 2019

	Empirical Basics	**Mathematical Basics**	**Econoimcs**	**Economics**	**Programming**
	Monday, 02.09.2019 Room 01-U201	Tuesday, 03.09.2019 Room 01-U201	Wednesday, 04.09.2019 Room 01-U201	Thursday, 05.09.2019 Room 01-U201	Friday, 06.09.2019 Room 01-U201
08.30 - 09.15	Welcome and Coffee (location to be confirmed)				
09.15 - 10.00	**Statistics Input** Prof. Petyo Bonev	**Mathematics Input** Prof. Enrico De Giorgi	**Microeconomics Input** Prof. Stefan Bühler	**Macroeconomics Input** Prof. Winfried Königer	**Programming in R** Prof. Ulrich Matter *Part I: Background and Tools*
10.00 - 10.45	Problem solving	Problem solving	Problem solving	Problem solving	
10.45 - 11.00	Break	Break	Break	Break	Break
11.00 - 11.45	Problem solving	Problem solving	Problem solving	Problem solving	*Part II: First steps in R, core concepts.*
11.45 - 12.45	Group Lunch (Mensa-Stübli)	Lunch (individually)	Lunch (individually)	Lunch (individually)	Lunch (individually)
12.45 - 13.30	**Econometrics Input** Jana Mareckova, Ph.D	Problem solving in groups/Presentations	Problem solving in groups/Presentations	Problem solving in groups/Presentations	*Part III: Working with Data in R.*
13.30 - 14.15	Problem solving				
14.15 - 15.00		Practice	Practice	Practice	
15.00 - 15.15	Break	Break	Break	Break	End
15.15 - 16.15	Problem solving in groups/Presentations	Mock Exam (60 min)*	Mock Exam (45 min)*	Mock Exam (45 min)*	
16.15 - 16.45		Orientation Economics@HSG Programme Commission about Mecon and MiQE/F			
16.45 - 17.15	Practice			City Tour in the old town start 16.30	
17.15 - 18.15	Mock Exam (60 min)	Apéro (location to be confirmed)			
18.15 - 19.00				Dinner in town start 18.00	
19.00 - 22.00					

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Literature List for the Integration Week MEcon and MiQE/F

In order to be able to follow the core studies in the MEcon and MiQE/F, a certain basic knowledge in various academic areas is required.

If you are familiar with the topics and subject areas (theory and application) listed below, you should be prepared and able to succeed with the contents offered in our courses on Master's level for MEcon and MiQE/F.

Please note: The books are only suggestions; other books can be used as well, if they cover similar topics.

Microeconomics

- Varian, Hal R. (2010): Intermediate Microeconomics – A Modern Approach; 8th Edition, W. W. Norton & Company (e.g. chapter 12, 14-16, 18-29, 31-34, 36 & 37).

or

- Varian, Hal R. (2014): Intermediate Microeconomics with Calculus; 1st Edition, W. W. Norton & Company (e.g. chapter 12, 14-16, 19-30, 32-35, 37 & 38).

Macroeconomics

For example the topics covered in:

- Peter Birch Sørensen and Hans Jørgen Whitta-Jacobsen (2011): Introducing Advanced Macroeconomics: Growth and Business Cycles, 2nd Edition, McGraw-Hill.
- Blanchard, Oliver (2017): Macroeconomics, 7th Edition, Pearson.
- Gärtner, Manfred (2016): Macroeconomics, 5th Edition, Pearson (Chapters 1-15).

Econometrics

A basic econometrics course at the level of, for example:

- Wooldridge, Jeffrey (2014): Introductory Econometrics - A Modern Approach; 6th Edition, Cengage Learning.

or

- Angrist, Josh and Steve Pischke (2015): "Mastering 'Metrics: The Path from Cause to Effect", Princeton University Press, US.

Statistics

- Morris DeGroot and Mark Schervish (2012): Probability and Statistics, 4th Edition, Pearson (chapters: 1, 2, 3, 4, 5, 6.2, 7, 9).

- Michael Barrow (2013): Statistics for economics, accounting and business studies, 6th Edition, Pearson (chapters: 1 - 5).

Mathematics

Students starting the MEcon or the MiQE/F are expected to have a solid background in mathematics before entering the programs. Knowledge of calculus in one and several variables, of linear algebra and some experience with proofs and formal mathematical arguments are required.

The following topics are pre-requisites for the MEcon and the MiQE/F programs:

Analysis:

- Mathematical logic
- Set theory (incl. operation with sets, Cartesian product)
- Combinatorics
- Real numbers and complex numbers
- Sequences, geometric sequences
- Series, geometric series, Euler number
- Financial mathematics (compound interest, present value, continuous compounding)
- Univariate calculus
    - Functions of a real variable
    - Polynomials, exponential and logarithmic functions, trigonometric functions
    - Continuity and differentiability: limits, continuous functions, derivatives
    - Differential, rate of change and elasticities
    - Monotonicity, convexity and concavity of functions
    - Extreme points
    - Taylor polynomials included remainder terms and Taylor theorem
- Multivariate Calculus
    - Functions of several variables
    - Partial derivatives
    - Taylor expansion for function of several variables
    - Generalized chain rule
    - Total differential and partial elasticities
    - Constrained and unconstrained optimization, Lagrange multiplier method
- Integration
    - Definite integral
    - Indefinite integral
    - Fundamental theorem of calculus
    - Improper integral
    - Marginal and total function
    - Probability distributions

Linear algebra:

- Matrices
- Vectors
- Gradients
- Systems of linear equations, existence and uniqueness of solutions, Cramer's rule, Gaussian elimination method
- Eigenvalues and eigenvectors
- Decomposition of matrices
- Quadratic forms

Dynamic models:

- First and second order linear difference equations
    - General solution
    - Monotonicity and convergence properties of solutions
- First order differential equations
    - Analytical solution methods

A self-assessment multiple-choice test which covers selected topics from the pre-requisites can be found at http://www.enricodegiorgi.com/test/index.htm

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Clearly, multiple-choice tests have some limitations. However, the test should allow you to refresh your mathematical knowledge before starting the MEcon or the MiQE/F programs. Please note that the test has been created to run under Adobe Reader. If your browser does not use Adobe Reader as default pdf viewer, you might face some issues. In this case, either select Adobe reader pdf viewer or download the file and do the test on paper. Solutions are reported at the end for a self-check.

The book

- De Giorgi, Enrico (2017): Mathematics, University of St.Gallen

covers all topics listed above, and thus best summarizes the pre-requisites in Mathematics for the MECON and MiQEF programs. Exercise booklets are also available, as well as an e-learning tool with more than 2000 multiple choice exercises and open questions. To request the book and the access to the e-learning tool please write go to www.e-maths.ch.

Alternatively, we also suggest the book:

- Chiang, Alpha C. and Kevin Wainwright (2005): Fundamental Methods of Mathematical Economics, McGraw Hill.