

M.Sc. Economics

Code:		Type:	M.Sc. 1 st semester lecture series
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Title:	Computational Methods
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Lecturer:	Tamás Papp
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ECTS:	3	Contact hours (per semester):	12 x 90 min
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Semester:	Winter 2009/10	Frequency of the lecture:	Twice a week
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Dates:	November 19 th , 2009 until January 21 st , 2010
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Prerequisites:	None
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Learning objectives (What are the intended learning outcomes? Which skills will be acquired?):

- Introduction of basic numerical techniques (solving linear and nonlinear equations, optimization, numerical integration etc), especially those that are used in economicsm,
- development of programming skills in general.

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

- Basics of computer programming, introduction to the R programming language.
- Numerical differentiation, errors in floating point arithmetic.
- Numerical linear algebra.
- Nonlinear constrained and unconstrained optimization, univariate and multivariate methods.
- Nonlinear systems of equations.
- Numerical integration.
- Function approximation.

Various economic applications, including:

- Computation of steady states.
- Solving deterministic and simple stochastic models.

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

English

Obligatory literature (E.g. scripts, books, articles, cases, papers):

- Mario J. Miranda and Paul L. Fackler: Applied Computational Economics And Finance; Chapters 1–6
- Kenneth L. Judd: Numerical Methods in Economics; Chapters 1–7
- Class notes

Additional literature (E.g. books, articles, cases, papers):

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Mode of examination (Mode of the examinations and tests (e.g. oral or written examination, lecture, homework, papers, class participation):

- Homeworks (cooperation is encouraged)
- Midterm examination
- Final examination

Grading:

- Homeworks (20%)
- Midterm examination (30%)
- Final examination (50%)

Special features (E.g. excursion, guest speaker):

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Contact information:

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Tuesday 04.00 – 05.30 p.m.
Room A 314
Please make an appointment in advance!

Course website:

<http://ihs.ac.at/~tpapp/cm> and <https://cecnet.tuwien.ac.at/>