UNIVERSITY OF MANNHEIM

Department of Economics

2022

Course Catalog Fall Semester 2022

MASTER OF ECONOMICS

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Contents

Preparatory Course in Mathematics

Module number and title	E600 Mathematics
Form and usability of the module	Preparatory module for M.Sc. Economics
Responsible teacher of the module	Martin Reinhard
Cycle of offer	Every fall semester
Module language	English
Prerequisites	Basic knowledge in logic and set theory (please read Chapter 0, available on the course website). We will go rather superficially over these topics in the first lecture and you will get the most out of it if you are well prepared.
Goals and contents of the module	This module is a preparatory math course. I will thus try to make sure that you do not start the program without mastering what can be considered as the most basic mathematical concepts for a graduate student in economics. The plan therefore is as follows: • Motivation and fundamental concepts (sets, functions) • Introduction to vector spaces • Introduction to matrix algebra • Multivariate calculus and integral calculus • Optimization Order of content may be subject to change, the final outline will be announced in the first session. This year, I will not have time to cover the topic "Stochastics and statistics", interested students can find my predecessor's lecture notes on her webpage, see the script. While the lecture sessions will be concept- rather than proof-oriented, by the end of the course, at the very least you should be comfortable with mathematical notation and logic, and should know that you need not be scared of formal proofs. At the same time, while the exercises will not be of the "cookbook" form, they should serve as a good warm-up for what will follow in the first semester master modules.
Expected competences acquired after completion of the module	By the end of the course the students should have a solid understanding of the most basic mathematical concepts for a graduate student in economics. Participants develop an intuition for basic mathematical constructs (for example derivatives, integrals and matrices), get familiar with mathematical notation and logic (such as distinguishing between axioms and theorems, following formal proofs), and learn when and how to apply the main theorems covered in this course (in particular Lagrange theorem).

Further information	This is an intensive course and will take place in the week prior to the beginning of the semester. The course will consist of lectures and exercise sessions. More information on the course structure can be found on the course website. As in most courses, you will need to put some extra time into preparing the exercises for the next session on your own. Problem sets will be handed out during the lecture and most of them will be discussed during the next days. I expect every participant to actively contribute to the discussions. If you feel you need some additional readings, you may want to have a look at Carl P. Simon / Lawrence Blume (1994): Mathematics for Economists, 1st Edition. W.W. Norton & Company, but there are many other good books around and I recommend you to have a look at many of them before you buy any to find one which best suits your personal needs.
Expected number of students in class	65
Contact information	Name: Martin Reinhard (lecturer); Email: mareinha@mail.uni-mannheim.de Name: Sebastian Herdtweck (administration); Email: econgrad@uni-mannheim.de; Office: L7, 3-5, room 4.05

Introductory Phase

The descriptions of modules of the module combination "Economic Research Preparatory Courses" can be found in the CDSE course catalog on the website of the Graduate School of Economic and Social Sciences.

Module number and title	E601 Advanced Microeconomics
Form and usability of the module	Core module for M.Sc. Economics with module combination "Economics"
Responsible teacher of the module	Prof. Dr. Ernst-Ludwig von Thadden; Dr. Peter Duersch
Cycle of offer	Every fall semester
ECTS credits	10
Teaching method (hours per week)	Lecture (4) + exercise (2)
Workload	300 hours in total; 63 hours class time and 237 hours for independent studies and exam preparation

Module language	English
Prerequisites	Students are expected to have solid mathematical skills at the level reviewed in preparatory module E600 Mathematics. Students without these skills are expected to prepare prior to the start of the program and to attend E600 Mathematics.
Grading	Written exam (120 min, 100%)
Goals and contents of the module	The module is a foundational module for the whole master's program, as all theories and applications of modern economics are based on microeconomic foundations. The module has two objectives. First, it provides a self-contained advanced introduction to the core concepts, notions, and tools of much of microeconomics, such as rational individual decision making, general equilibrium, and strategic interactions. Second, it acquaints the students with the formal reasoning and economic intuition behind modern economic analysis. The module covers the following broad areas: • Consumer and producer theory • General equilibrium and welfare • Games of complete information • Games of incomplete information
Expected competences acquired after completion of the module	Upon successful completion of the module, students will know and be able to apply advanced concepts of microeconomic theory. In particular, they will be able to use the formal mathematical tools necessary for understanding economic research and for analyzing problems in economics and other social sciences. With these conceptual and formal competences, students will be able to critically evaluate economic arguments and conduct and communicate their own research in microeconomics and related areas.
Further information	A list of textbooks will be announced at the start of the lecture. The following two books cover all topics discussed in the module and much more: • Mas-Colell, Andreu, Michael Whinston, Jerry Green: Microeconomic Theory, Oxford University Press, 1995. • Varian, Hal: Microeconomic Analysis, Norton, New York and London, 1992. The mathematics needed for this and other modules in the program is covered, e.g., by: • Simon, Carl and Lawrence Blume: Mathematics for Economists, Norton, New York and London, 1994. • Hammond, Peter and Knut Sydsaeter: Essential Mathematics for Economic Analysis, Pearson Education, London, 2002.
Expected number of students in class	65
Contact information	Name: Prof. Dr. Ernst-Ludwig von Thadden; Email: vthadden@uni-mannheim.de; Office: L7, 3-5, room 3.19

	Name: Dr. Peter Duersch; Email: duersch@uni-mannheim.de; Office: L7, 3-5, room 3.46

Module number and title	E602 Advanced Macroeconomics
Form and usability of the module	Core module for M.Sc. Economics with module combination "Economics"
Responsible teacher of the module	Prof. Krzysztof Pytka, Ph.D
Cycle of offer	Every fall semester
ECTS credits	10
Teaching method (hours per week)	Lecture (4) + exercise (2)
Workload	300 hours in total; 63 hours class time and 237 hours for independent studies and exam preparation
Module language	English
Prerequisites	Good working knowledge of calculus (constrained optimization, multivariate Taylor expansion, geometric series)
Grading	Written exam (120 min, 100%)
Goals and contents of the module	The module familiarizes students with the essential concepts of modern macroeconomic theory at an advanced level. Apart from traditional analysis of business-cycle fluctuations, a particular focus will be placed on learning how to use formal micro-founded models to study and understand cross-sectional heterogeneity of households, one of key components for the most state-of-the-art macroeconomic models nowadays. During the module students will also learn the necessary techniques to solve dynamic programming models using MATLAB. Module roadmap: 1. Introduction to the methodology. Scientific method in Macroeconomics. Ockham's razor. Lucas critique. 2. Building block of models. Preferences, production. Optimization problems of agents. 3. Permanent-income hypothesis. Lifecycle consumption. Permanent vs. transitory shocks. Public pensions in life-cycle economies. Consumption search and life-cycle prices. Consumption retirement puzzle. 4. Fiscal stimulus programs. Wealthy hand-to-mouth households. 5. Public debt in overlapping-generations economies.

	6. (If time permits) Solow growth model vs. Piketty growth model. 7. Introduction to dynamic programming. 8. Optimal stochastic growth model. McCall labor search.
Expected competences acquired after completion of the module	Completion of this module is a core requirement for our master's program in Economics. It prepares students to successfully participate in advanced field modules offered in this program. Together with the companion modules in microeconomics and econometrics, this module will enable students to develop their own research agenda for the Master program as well as a PhD program that they may want to pursue subsequent to this Master program. Having completed these modules, students will feel comfortable reading journal articles at the frontier of modern economic research. A particular focus will be placed on obtaining technical skills, i.e. log-linearization techniques, solving linear rational expectations models, etc.
Further information	The mandatory textbook chapters and articles will be announced in the lecture.
Expected number of students in class	65
Contact information	Name: Prof. Krzysztof Pytka, PhD; Email: pytka@uni-mannheim.de; Office: L7 3-5, room 2.09

Module number and title	E603 Advanced Econometrics
Form and usability of the module	Core module for M.Sc. Economics with module combination "Economics"
Responsible teacher of the module	Prof. Markus Frölich
Cycle of offer	Every fall semester
ECTS credits	10
Teaching method (hours per week)	Lecture (4) + exercise (2)
Workload	300 hours in total; 63 hours class time and 237 hours for independent studies and exam preparation
Module language	English
Prerequisites	Undergraduate level of econometrics
Grading	Written exam (120 min, 100%)
Goals and contents of the module	The goal of the module is to offer advanced treatment of econometric theory and to serve as the gate way to further advanced theoretical and applied

	econometric modules offered in the economics graduate program at the Department of Economics in Mannheim. The module offers a revision of undergraduate level econometrics before moving on to extensive coverage of large-sample theory and some organizing estimation principles such as GMM estimators. Asymptotic properties of these estimators are also the focus of the module as well as non-linear models and the treatment of serial correlation.
Expected competences acquired after completion of the module	On successful completion of the module, students are expected to attain the following competences: • Attain advanced theoretical knowledge in econometrics in the specific topics the module covers at a high technical and mathematical level. • Be familiar with current theories and recent developments in the specific topics of focus for the module. • Attain a higher/advanced level of analytical capability. • Be in a position to take on follow-up advanced theoretical and applied econometrics modules. • Attain the level of competence that permits independent undertakings in search of new knowledge in the specialist areas the module covers. • Attain the level of competence required to carry out (theoretical) research-oriented projects independently. • To be in a position to exchange information, ideas, and solutions with experts of the field on a scientific level as well as with laymen. • To be able to communicate and to work effectively and efficiently with people and in groups. • Graduates are able to communicate precisely in the English specialist language.
Further information	Recommended textbooks: • Econometrics; Bruce E. Hansen; University of Wisconsin; https://www.ssc.wisc.edu/~bhansen/econometrics/ • Wooldridge (2010): Econometric Analysis of Cross Section and Panel Data. MIT Press.
Expected number of students in class	65
Contact information	Name: Anja Dostert; Email: dostert@uni-mannheim.de; Office: L7, 3-5, room 1.21/1.22

Specialization Phase: Lectures

The descriptions of modules for study track 3: Economic Research can be found in the CDSE course catalog on the website of the Graduate School of Economic and Social Sciences.

Module number and title	E551 Experimental Methods in Economics
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Dr. Franziska Heinicke
Cycle of offer	Irregular
ECTS credits	9
Teaching method (hours per week)	Lecture (2) + exercise (2)
Workload	270 hours in total; 42 hours class time and 228 hours for independent studies and exam preparation
Module language	English
Prerequisites	E601-E603 (or equivalent)
Grading	Written exam (90 min, 65%), take-home assignments (8 – 12 pages, 35%)
Goals and contents of the module	This module will introduce students to the method of experimental economics as an empirical research method, which has become an established tool for economic analysis. Economists make use of experimental methods to test theoretical predictions, gain a better understanding of human behavior and to search for regularities in economic activity. This module will familiarize students with the principles of conducting and analyzing an experiment. We will start by considering the differences between experiments and other empirical methods and then will address the complete process of conducting an experiment including appropriate randomization protocols, the decision between various treatment forms, choosing an appropriate research setting, and drawing conclusion from collected data. By discussing the designs and findings of influential experiments, this module will address the different design challenges of laboratory and field experiments as well as the generalizability of experimental findings.
Expected competences acquired after completion of the module	The goal of this module is to enable students to critically analyze experimental research and to provide them with the necessary practical knowledge to plan an experimental research project. Successful students will have a thorough understanding of the benefits and limits of experimental economics and be familiar with core concepts of experimental economics. In the assignment,

	students will design their own experiment over several weeks and repeatedly present their progress to the module, which allows them to engage with the material more actively and gain research skills on how to conduct economic experiments.
Expected number of students in class	20
Contact information	Name: Dr. Franziska Heinicke; Email: f.heinicke@uni-mannheim.de, Office: L7, 3-5, 4.04

Module number and title	E5024 Poverty and Inequality
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Dr. Marc Gillaizeau, Dr. Viviana Urueña
Cycle of offer	Every fall semester
ECTS credits	7
Teaching method (hours per week)	Lecture (2) + exercise (1)
Workload	210 working hours, containing 31.5 hours class time and 178.5 hours independent study time and preparation for the exam.
Module language	English
Prerequisites	E601- 603 (or equivalent). A background in development economics and Stata is helpful.
Grading	Presentation (20 min during tutorial, 20%), take-home assignments (5 – 10 pages, 50%), written exam (45 min, 30%)
Goals and contents of the module	The module will introduce students to the main concepts of poverty and inequality measurements and the critical links between poverty and inequality and economic growth. Students will get an overview on theories of justice, methodological aspects of poverty & inequality measurement, gender inequalities, economic mobility, inequality and poverty in rich countries as well as development policy targeting poverty. The module will focus on low- and middle-income countries. It is structured as follows: 1. Introduction 2. Long Run Determinants of Growth 3. Concepts and Measurements of Poverty I 4. Concepts and Measurements of Poverty II 5. Poverty Alleviation I: (Micro-)finance

	6. Poverty Alleviation II: Cash transfers 7. Concepts and Measurements of Inequality 8. Does Inequality Cause Growth? 9. Pro-Poor Growth 10. Inequality and Gender 11. Poverty and Inequality in High-Income Countries 12. Economic Mobility 13. The Behavioral Economics of Poverty 14. Recap
Expected competences acquired after completion of the module	The students will become acquainted with topics related to poverty alleviation and inequality measurements. They will also learn how to synthesize, interpret regression tables, critically review, and discuss peer-reviewed papers in the field. In addition, students will improve their presentation skills and will learn how to handle feedback and questions from their peers in class. Last, students will extend their programming skills by calculating inequality indexes and poverty measures in Stata.
Expected number of students in class	20
Contact information	Name: Dr. Marc Gillaizeau; Email: gillaizeau@uni-mannheim.de; Office: L7, 3-5, room 1.19

Module number and title	E5026 Programming in Stata
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Dr. Ingo Steinke, Nicholas Barton, Ph.D.
Cycle of offer	Every fall semester
ECTS credits	9.5
Teaching method (hours per week)	Lecture (3) + exercise (1)
Workload	285 hours in total; 42 hours class time and 243 hours for independent studies, project, and exam preparation
Module language	English
Prerequisites	E601-603 (or equivalent)
Grading	Written exam (90 min, 100%)
Goals and contents of the module	Although Stata already offers a large number of econometric tools, novel approaches are often not available and have to be implemented by users. This module offers an introduction to advanced programming in Stata. Since

	comparatively few people know how to do so, Stata programming skills can be a competitive advantage. The lecture will start with an introduction to efficiently written do-files (including data processing). We will look at and discuss different data types. In hands-on sessions students will be taught how to prepare the data for analysis. Variables will be generated and their distributions explored; data will be merged; and regression results will be critically discussed. Moreover, in this module students will learn how to implement new commands for Stata and to conduct Monte Carlo simulations. These are important for verification of implementations and are used as a very important tool to analyse the small sample properties of estimators and to complement the theoretical properties of estimators making them an integral part of econometric analyses. We will also touch upon Stata's matrix programming language Mata, non-linear optimization, e.g. ML estimation and bootstrap methods
Expected competences acquired after completion of the module	Students will be able to program quantitative methods using Stata independently. They are able to use Stata and Mata as programming languages and understand the standard syntax and the grammar of the languages. They will also be able to understand commands in Stata and edit these accordingly. Knowledge won from this module can be applied to various records. Students are capable of automatizing analysis and working efficiently. In addition to that, they will be able to conduct Monte Carlo simulations and interpret and use the results to estimate the quality of the estimation procedure. They can generate samples from a variety of distributions. Through Monte Carlo simulations, students will have a better comprehension of the uncertainty and quality of the estimation and test procedures.
Further information	Recommended reading: Cameron/ Trivedi (2009). Microeconometrics using Stata. Stata Press
Expected number of students in class	20
Contact information	Name: Dr. Nicholas Barton; Email: nibarton@mail.uni-mannheim.de Name: Dr. Ingo Steinke; Email: isteinke@rumms.uni-mannheim.de

Module number and title	E5040 Impact Evaluation and Causal Inference
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Prof. Dr. Markus Frölich
Cycle of offer	Every fall semester
ECTS credits	7

Teaching method (hours per week)	Lecture (2) + exercise (1)
Workload	210 working hours, containing 31.5 hours class time and 178.5 hours independent study time
Module language	English
Prerequisites	E601-603 (or equivalent)
Grading	Written exam (120 min, 100%)
Goals and contents of the module	This module will introduce students to theory and methods of modern impact evaluation. Topics will include counterfactual outcomes, heterogeneous treatment effects, (propensity) score matching, differences in differences, instrumental variables design, randomized control trials, and regression discontinuity design.
Expected competences acquired after completion of the module	The students are able to apply the main econometric models and estimators for impact evaluation and causal infererence and are able to analyze and judge causal inference identification strategies.
Further information	Recommended literature: Impact Evaluation (Frölich, Sperlich, 2019, Cambridge University Press)
Expected number of students in class	20
Contact information	Name: Anja Dostert; Email: dostert@uni-mannheim.de; Office: L7, 3-5, room 1.21/1.22

Module number and title	E5064 Empirical Methods in Competition Policy
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Prof. Dr. Helena Perrone
Cycle of offer	Every fall semester
ECTS credits	5
Teaching method (hours per week)	Lecture (2)
Workload	150 hours consisting of 21 hours class time and 129 hours independent study, solution of problem sets and preparation for exam.
Module language	English

Prerequisites	E601-603 (or equivalent)
Grading	Written exam (120 min, 70%), take-home assignments (8 – 12 pages, 30%)
Goals and contents of the module	The objective of the module is to introduce students the empirical analysis of market power and applications to competition policy. The first part of the module will cover the main methods to measure market power, such as the identification of conduct and estimation of demand systems with differentiated products. The second part will provide competition policy applications, including empirical approaches to market definition, methods to evaluate the impact of mergers, methods to identify cartels and estimate cartel damages, and analysis of anticompetitive effects of vertical restrictions. The material is illustrated with several European or U.S. cases. In contrast to E5046 Empirical Industrial Organization, this module is more focused on the practice of competition policy rather than research.
Expected competences acquired after completion of the module	The students will get familiarized with the main techniques used to measure market power and identify cartels, as well as to evaluate non-competitive behavior of oligopolistic firms. They will be able to apply these techniques in different competition cases and also evaluate and identify weakness and strength in competition studies. Furthermore, students will develop the skill to adapt and extend the empirical techniques presented to specific cases in which there is limited time and data availability.
Further information	The reading list for this class is composed of a number of recent academic articles and competition cases. The list of articles will be presented as the subject develops.
Expected number of students in class	15
Contact information	Name: Prof. Dr. Helena Perrone; Email: helena.perrone@uni-mannheim.de; Office: L7, 3-5, room 3.13

Module number and title	E5086 Chinese Economy
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Prof. Lei Li, Ph.D.
Cycle of offer	Every fall semester
ECTS credits	7,5
Teaching method (hours per week)	Lecture (3)
Workload	225 working hours, containing 31.5 hours class time and 193.5 hours independent study time and preparation for the exam

Module language	English
Prerequisites	E601-603 (or equivalent), especially econometrics at the master level. Experience with statistical software such as Stata will be helpful.
Grading	Assignments (8 – 12 pages, 85%) and classroom discussion (15%)
Goals and contents of the module	This module is designed for graduate students interested in international trade, labor economics, development economics, applied econometrics, and the Chinese Economy. Our first goal is to provide an introduction to a set of important topics related to the economic development of China so that students have a good understanding of the Chinese Economy and China's impact on the rest of the world. A tentative list of topics includes China's trade liberalization, the US-China trade war, China's population control policy and its impact on China's economic development, labor market dynamics (wage, employment, and human capital accumulation), agricultural reforms, and firm reforms. The second goal is to present the empirical tools used to test related economic theories in the context of China and to discuss the empirical relevance of related theories. We will emphasize the conceptual issues and basic statistical techniques, such as instrumental variable strategy and differences-in-differences-type strategies. Students will also get familiar with several widely used Chinese datasets and learn how to conduct empirical analysis. Our third goal is to introduce frontier researches to students. We will draw on some recent academic papers from international trade, labor economics, finance, development economics, macroeconomics, and economic growth, which will allow students to have a good understanding of cutting-edge researches and help students outline future research questions.
Expected competences acquired after completion of the module	Students are expected to have a good understanding of topics on the US-China trade war, China's entering the WTO, China's population control policy, aging, income inequality, firm reforms, agricultural reform, and several important economic reforms. Students are expected to have a good understanding of several widely used applied econometric tools, such as instrumental variable strategy and differences-in-differences-type strategies. Students will be able to summarize and compare various theories that explain China's economic development. Students will also be able to use STATA to conduct empirical analysis.
Expected number of students in class	15
Contact information	Name: Prof. Lei Li, Ph.D.; Email: lei.li@uni-mannheim.de; Office: L7, 3-5, room 301

Module number and title	E5087 Banking and Banking Regulation
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Prof. Ernst-Ludwig von Thadden
Cycle of offer	Every fall semester
ECTS credits	7,5
Teaching method (hours per week)	Lecture (3)
Workload	225 hours, containing 31.5 hours class time and 193.5 hours for independent studies and exam preparation.
Module language	English
Prerequisites	E601-603 (or equivalent). Students are expected to be familiar with mathematical concepts at the level of E600 Mathematics.
Grading	Written exam (120 min, 100%)
Goals and contents of the module	The module covers the basic theory of banking and its regulation, with an emphasis on the systemic problems of financial stability. The module will first cover classic theories of banking based on screening, monitoring, risk-sharing, maturity transformation, and liquidity provision. It will then address problems of financial stability with respect to banking as well as to shadow banking and discuss regulation in the context of the current debate about macroprudential regulation and the Basel reform process.
Expected competences acquired after completion of the module	Upon successful completion of the module, students should understand the most important economic functions of banks and the associated potential of banking failures. They will acquire the necessary analytical tools to understand the current regulatory debate about banking reform and should be able to critically assess the merits of different reform proposals.
Further information	There is no textbook for this module, as some of the material is still fairly new and subject to ongoing research. The following book provides a broad overview over modern banking and financial markets and covers many topics of the module in quite accessible form: Greenbaum, Stuart, Anjan Thakor, and Arnout Boot, Contemporary Financial Intermediation, Fourth Edition, Academic Press 2016. This book is written for a less advanced audience than the Mannheim MSc and therefore does not cover some of its themes in the same depth as our module. Another excellent and very accessible book on a central problem of banking is: Admati, Anat and Martin Hellwig, The Bankers' New Clothes, Princeton University Press 2013.

Expected number of students in class	30
Contact information	Name: Prof. Dr. Ernst-Ludwig von Thadden; email: vthadden@uni-mannheim.de; Office: L7, 3-5, room 3.19

Module number and title	E5090 Internet Economics
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Anton Sobolev, Ph.D.
Cycle of offer	Irregular
ECTS credits	7
Teaching method (hours per week)	Lecture (2) + exercise (1)
Workload	210 working hours, containing 31.5 hours class time and 178.5 hours independent study time and preparation for the exam
Module language	English
Prerequisites	E601-603 (or equivalent), advanced knowledge in Industrial Organization and Game Theory is advantageous.
Grading	Written exam (120 min, 100%)
Goals and contents of the module	The last two decades have seen the striking emergence of new Internet platforms for search, e-commerce, online media, job matching, social networking and other online activities. This module is aimed at exploring how online businesses are organized, what role search intermediaries play in getting together buyers and sellers, the optimal design of online platforms and related efficiency issues. The topics we are going to cover are based on real world examples, such as consumer search using search engines, competition between online platforms, sponsored search auctions used by Google and online reputation mechanisms on Amazon. The module will be mainly theory-orientated. The theoretical models we will cover thus require a solid microeconomics and math background. However, we will also discuss related case studies, empirical works and experiments.
Expected competences acquired after completion of the module	Students are expected to acquire knowledge of the internet markets and learn how to explain online phenomena by using economics language. They should be able to discuss the key mechanisms on online platforms, platform pricing structure, online participant interactions, consumer surplus and related policy issues.

Further information	There is no required textbook for this module. The lecture will be mainly based on lecture notes and some research papers. However, the following books might be useful for both refreshing basic IO knowledge and selective reading of topics: 1. Paul Belleflamme and Martin Peitz, Industrial Organization: Markets and Strategies, 2010, Cambridge University Press. 2. Martin Peitz and Joel Waldfogel, The Oxford Handbook of The Digital Economy, 2012, Oxford University Press. 3. Hal Varian, Information Rules: A Strategic Guide to the Network Economy, 1998, Harvard Business Review Press. Notice that it is unnecessary to buy those books, as we will only cover a small fraction of each book.
Expected number of students in class	15
Contact information	Name: Anton Sobolev, Ph.D.; Email: anton.sobolev@uni-mannheim.de; Office: L7, 3-5, room 3.32

Module number and title	E5095 Nonparametric Econometrics
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Prof. Mengshan Xu, Ph.D.
Cycle of offer	Irregular
ECTS credits	5
Teaching method (hours per week)	Lecture (2)
Workload	150 hours in total; 21 hours class time and 129 hours for independent studies and exam preparation.
Module language	English
Prerequisites	E601-603 (or equivalent)
Grading	Written exam (90 min, 100%)
Goals and contents of the module	Nonparametric estimations do not rely on the assumption that models can be described by (finite-dimensional) parameters. Instead, it is constructed based on the (infinite-dimensional) functional classes characterized by the so-called "smoothness conditions", and it is a starting point and one of the cornerstones of modern machine learning.

	This module gives an introduction to nonparametric estimation from both theoretical and applied perspectives. Its focus is on theory, and it starts from the basic ideas and simple intuitions that separate and link parametric and nonparametric models. The key concepts will be introduced and visualized gradually along the journey. The content is very suitable for students with no apriori knowledge of the functional structures of the underlying models. The module covers kernel and series estimators in both density estimation and regression problems. Within this framework, statistical properties of the estimators will be discussed, such as consistency, upper bounds for estimation risk, and asymptotic normality. We will encounter typical phenomena such as the balance between bias and variance, and the curse of dimensionality, which has attracted a great deal of attention for modern developments in the analysis of big data.
Expected competences acquired after completion of the module	Upon completing this module, the students will have a working knowledge of classical nonparametric methods for estimating unknown functions of interest, and they will understand the theoretical background of these methods. The students can apply the estimation procedures to data using statistical software.
Further information	Recommended textbooks: Econometrics, Bruce E. Hansen; University of Wisconsin, (2022) Semiparametric and nonparametric methods in econometrics, Horowitz, (2009) Introduction to Nonparametric Estimation, Tsybakov, (2009)
Expected number of students in class	20
Contact information	Name: Prof. Mengshan Xu, Ph.D.; Email: mengshan.xu@uni-mannheim.de; Office: L7, 3-5, room 1.08

Module number and title	E5100 Topics in Economic History
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Dr. Alexander Donges
Cycle of offer	Every fall semester
ECTS credits	9
Teaching method (hours per week)	Lecture (2) + exercise (2)

Workload	270 hours in total, containing 42 hours class time and 228 hours for independent studies, exercises and exam preparation.
Module language	English
Prerequisites	E601-603 (or equivalent)
Grading	Written exam (100 min, 70%), presentation (20 min, 20%), classroom discussion (10%).
Goals and contents of the module	Economic history is important to understand long-run economic development, in particular to study the question why some countries are rich and others remain poor. In this module, we focus on selected topics of quantitative economic history that applied economists and economic historians explored in recent years. Topics include trade, the importance of institutions for economic development, religion, human capital, innovation, market integration, financial development, inequality, migration, and epidemics. The weekly lecture (2 hours) gives you an overview on recent empirical research on each topic. In the weekly exercise sessions (2 hours), we then discuss important research papers in more depth. It is required that every module participant presents a critical discussion of one research paper.
Expected competences acquired after completion of the module	Students will acquire thorough knowledge of empirical methods used in modern applied economics and quantitative economic history. They will be able to apply their knowledge of econometrics in analyzing research questions in economic history and discuss potential policy implications, for example with respect to development policies. The module also aims at enabling students to critically evaluate empirical research designs that may encounter in their future career.
Further information	A detailed syllabus (including literature) is available on my website (https://www.vwl.uni-mannheim.de/en/donges/).
Expected number of students in class	20
Contact information	Name: Dr. Alexander Donges; Email: donges@uni-mannheim.de; Office: L7, 3-5, room 403

Module number and title	E5115 Globalisation and the Environment
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Prof. Dr. Philipp M. Richter
Cycle of offer	Once
ECTS credits	9

Teaching method (hours per week)	Lecture (2) + exercise (2)
Workload	270 hours in total; 42 hours class time and 228 hours for independent studies and exam preparation
Module language	English
Prerequisites	E601-603 (or equivalent); helpful: Environmental Economics, International Trade
Grading	Written exam (90 min, 100%)
Goals and contents of the module	What is the impact of globalisation on the environment, e.g. regarding local air pollution or deforestation? How should an environmental policy be designed in the context of international linkages, e.g. addressing climate change, while firms might relocate? This module will discuss the various interrelations of globalisation and the environment focusing on recent methods (both empirical and analytical), important findings, the shift to the micro-level and open research questions.
Expected competences acquired after completion of the module	Students will gain knowledge on and a thorough understanding of the research frontier in the field of globalisation and the environment. Students will develop and improve their skills in critically assessing and evaluating research designs, of both theoretical and empirical work.
Further information	Basic reading: 1) Cherniwchan, Jevan M. and M. Scott Taylor (2022). International Trade and the Environment: Three Remaining Empirical Challenges. NBER Working Paper Series 30020, DOI: https://doi.org/10.3386/w30020 2) Copeland, Brian R., Joseph S. Shapiro and M. Scott Taylor (2021). Globalization and the Environment. NBER Working Paper Series 28797, DOI: https://doi.org/10.3386/w28797 3) Cherniwchan, Jevan, Brian R. Copeland and M. Scott Taylor (2017). Trade and the Environment: New Methods, Measurements, and Results. Annual Review of Economics 9(1): 59-85, DOI: http://doi.org/10.1146/annurev-economics-063016-103756
Expected number of students in class	20
Contact information	Name: Prof. Dr. Philipp M. Richter; Email: philipp.richter@uni-mannheim.de

Module number and title	E5116 Text Analysis
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Prof. Dr. Bernhard Ganglmair
Cycle of offer	Irregular
ECTS credits	2,5
Teaching method (hours per week)	Lecture (1)
Workload	75 working hours, including 10.5 hours of class time and 64.5 hours of independent studies and exam preparation
Module language	English
Prerequisites	E601-603 (or equivalent)
Grading	Module paper (5 – 10 pages, 100%)
Goals and contents of the module	This module aims to introduce students to the essential tools of text analysis (or: natural language processing, NLP). It turns unstructured text into quantitative data used for empirical research in economics, management science, and many other fields. We will use R for most of the module and Python to showcase some machine learning applications with text data at the end of the semester. Topics: - Working with text: regular expressions/regex - text parsing - parts-of-speech tagging - web-scraping – dictionaries - Text as data: - word-embeddings (from bag-of-words to word2vec/GloVe) - topic models - sentiment analysis - text-similarity - ML with text (in Python): - ML fundamentals - BERT - text-classification We will use recent economics and management science literature applications to illustrate methods and concepts.
Expected competences acquired after completion of the module	Students will be equipped with the basic concepts and programming skills to undertake independent text analysis projects in the software R. In addition, they will further be familiar with the resources needed to build on these basic concepts and dive deeper into an ever-growing literature.
Further information	We will dedicate the first two units to an introduction to R for those students who have no or limited prior experience with R. Students should bring their own laptops.
Additional teachers	Alexander Kann
Expected number of students in class	20
Contact Information	Name: Prof. Dr. Bernhard Ganglmair; Email: ganglmair@uni-mannheim.de

Specialization Phase: Seminars

Module number and title	E574 Internet Economics
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Anton Sobolev, Ph.D.
Cycle of offer	Irregular
ECTS credits	5
Teaching method (hours per week)	Block seminar (2)
Workload	150 working hours for organizational meeting, block seminar, preparation of the seminar paper and presentation.
Module language	English
Prerequisites	E601-603 (or equivalent)
Grading	Presentation (40 min, 30%), seminar paper (8 – 12 pages, 60%), classroom discussion (10%)
Goals and contents of the module	The rapid development of Internet provides not only new business models and life styles but also a novel area for economists to explore. In this seminar, students will present research papers on related topics including two-sided market, price dispersion, information congestion, search engine pricing, and so on.
Expected competences acquired after completion of the module	Students should acquire good understanding of business organization on Internet and be able to analyze them using economics models.
Expected number of students in class	15
Contact information	Name: Anton Sobolev, Ph.D.; Email: anton.sobolev@uni-mannheim.de, Office: L7, 3-5, room 3.32

Module number and title	E599 Empirical Environmental Economics
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Dr. Kathrine von Graevenitz
Cycle of offer	Every fall semester
ECTS credits	5
Teaching method (hours per week)	Block seminar (2)
Workload	150 working hours for organizational meeting, block seminar, preparation of the seminar paper and presentation.
Module language	English
Prerequisites	E601-603 (or equivalent)
Grading	Presentation (30 min, 40%), report (3 – 5 pages, 40%), classroom discussion (20%)
Goals and contents of the module	This seminar covers recent empirical research in environmental economics. The reading list for the class will focus on a particular research topic in environmental economics, such as climate policy or air pollution control. Each student will present a paper chosen from the list to the class and write a report critiquing the paper. Emphasis will be on identifying the central questions addressed in the paper, evaluating the methodology and data, and making suggestions for improvements and extensions.
Expected competences acquired after completion of the module	Ability to present academic research to semi-expert audience, ability to critically reflect on academic research, and to articulate criticism and suggestions for improvement.
Expected number of students in class	15
Contact information	Name: Dr. Kathrine von Graevenitz; Email: Kathrine.vonGraevenitz@zew.de

Module number and title	E5027 Topics in Experimental Economics
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Prof. Dr. Henrik Orzen
Cycle of offer	Irregular
ECTS credits	5
Teaching method (hours per week)	Block seminar (2)
Workload	150 working hours for organizational meeting, block seminar, preparation of the seminar paper and presentation.
Module language	English
Prerequisites	E601-603 (or equivalent)
Grading	Presentation (30 min, 40%), seminar paper (8 – 10 pages, 40%), classroom discussion (20%)
Goals and contents of the module	Experiments in economics are an important contributor to improving our understanding of how people make decisions and of how economic institutions work. Unlike approaches based on conventional observational or happenstance data, experimental methods allow researchers to not just collect but in fact generate previously non-existing empirical data that is moreover specifically tailored to address the research question at hand. Unlike survey data, experimental findings typically arise from actual decisions with real incentives, not from hypotheticals or from self-reported information. Experiments are conducted in the laboratory or in the field. The goal of this module is to provide a general introduction to experimental economics, to examine examples of experimental work in a range of topics, and to discuss methodological questions regarding the design and the analysis of experiments. At the center of each week's discussion will be a specific experimental paper, which is to be read by all students in preparation for the meeting. The presenter's task will be to summarize and discuss the paper, and to present insights from related literature and/or from other research that builds on the central paper. Audience members are expected to contribute by submitting discussion questions ahead of the meeting and by actively participating in the discussion during the meeting. Students are also required to write a short seminar paper on their topic.
Expected competences acquired after completion of the module	By the end of the semester students who have successfully completed the module will be able to demonstrate a working knowledge of some important findings from the experimental literature. They will be familiar with various experimental methods. They will have improved their ability to critically evaluate experimental evidence and theoretical approaches in economics.

	Furthermore, they will have improved their presentation and communications skills.
Further information	A list of relevant papers will be distributed—and topics allocated based on participants' preferences—after the registration process for the seminar is complete.
Expected number of students in class	15
Contact information	Name: Prof. Dr. Henrik Orzen; Email: henrik.orzen@uni-mannheim.de; Office: L7, 3-5, room 4.01

Module number and title	E5099 Health Economics
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Prof. Achim Wambach, Ph.D.
Cycle of offer	Irregular
ECTS credits	5
Teaching method (hours per week)	Seminar
Workload	150 working hours, containing 21 hours class time and 129 hours independent study time
Module language	English
Prerequisites	E601-603
Grading	Seminar paper (22,000 characters including spaces, 50%), presentation and discussion (30 min, 50%)
Goals and contents of the module	The seminar covers recent research on the economics of health care provision. The focus is on incentives of insurance and payment schemes. This seminar includes research on how insurance design affects treatment provision, how reimbursement schemes influence physician behavior as well as how payment for pharmaceuticals influences innovation as well as prescription patterns.
Expected competences acquired after completion of the module	Students have gained knowledge in recent developments in health economics. They can apply their expertise and methods to analyze and evaluate ongoing debates in both the academic and the policy-oriented literature. The students have broadened their analytical and empirical abilities as well as their presentation and discussion skills.

Expected number of students in class	10
Contact information	Name: Kaja von Campenhausen; Email: Kaja.vonCampenhausen@zew.de

Module number and title	E5106 Historical Economic Development
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Prof. Philipp Ager, Ph.D.
Cycle of offer	Every fall semester
ECTS credits	5
Teaching method (hours per week)	Block seminar (2)
Workload	150 working hours for organizational meeting, block seminar, preparation of the seminar paper and presentation.
Module language	English
Prerequisites	E601-603 (or equivalent)
Grading	Seminar paper (10 – 15 pages, 50%), presentation (30 min, 40%), classroom discussion (10%)
Goals and contents of the module	This module uses a historical and comparative approach to understanding the evolution and development of societies. We will examine research that asks whether differences in economic development today have historical roots. Our focus will be on discussing recent and classical studies that analyze the underlying forces that led to industrialization and sustainable growth in Europe and North America. In addition, we will study different mechanisms and channels through which history matters. Particular focus will be on articles that look for direct evidence on path dependence, the role of institutions, technological change and innovation. While the material covered in the module is grounded in the field of economic history, there is a natural overlap with other fields in economics, such as development economics, economic geography and political economy.
Expected competences acquired after completion of the module	Participants of this seminar will acquire a deeper understanding of a well-established literature that studies historical events to understand why some countries today are so rich and others are still so poor. The students will learn to critically evaluate research papers. They will engage in academic discissions in-class. Finally, they will improve their presentation skills and they will learn how to handle feedback and questions from their peers in class.

Further information	The reading list will be provided in the first meeting. Presentations will be on two consecutive days in December.
Expected number of students in class	15
Contact information	Name: Prof. Philipp Ager, PhD; Email: pager@uni-mannheim.de; Office: L7, 3-5, room P02

Module number and title	E5113 Optimal Corrective Taxation
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Responsible teacher of the module	Dr. Andreas Gerster
Cycle of offer	Irregular
ECTS credits	5
Teaching method (hours per week)	Block seminar (2)
Workload	150 working hours for organizational meeting, block seminar, preparation of the seminar paper and presentation.
Module language	English
Prerequisites	E601-603 (or equivalent)
Grading	Seminar paper (8 – 12 pages, 50%), presentation (30 min, 30%), classroom discussion (20%)
Goals and contents of the module	In recent years, policy makers have increasingly made use of taxation in order to steer consumers' decisions into socially desirable directions. Corrective taxation has been applied in settings where consumers disregard the impact of their decision-making on other consumers (externalities) and when they make mistakes in their decision-making process (internalities). Prominent examples include the taxation of carbon emissions and of so-called sin goods such as cigarettes and sugar. Drawing on empirical and theoretical research, this seminar analyzes the optimal design of corrective taxation. The theoretical papers covered investigate the rationale of optimal externality and internality taxes and explore how such taxes can improve efficiency. We will also discuss how a concern about the distributional implications of corrective taxes affects optimal taxation formulas. The empirical papers covered in the seminar aim at empirically quantifying optimal corrective taxes or subsidies in settings such as energy efficiency investments, carbon emissions, and sin good consumption. Students will write a 10-page paper on a particular aspect and present their work in class.

Expected competences acquired after completion of the module	Students will have to write a research paper of at least 10 pages on a clearly defined topic within the context of the seminar topic. This helps them to develop their skills of in terms of absorbing the current literature and in terms of academic writing, both of which will be useful to them when working on their master's thesis. Moreover, students will have to present their paper in class to their fellow students in a clear and succinct way. Finally, students learn how to engage in a scientific debate. All of the above skills are outstanding importance in many professional careers for economics graduates, especially so in English, the language of instruction for this class.
Expected number of students in class	15
Contact information	Name: Dr. Andreas Gerster; Email: gerster@uni-mannheim.de; Office: L7, 3-5, room 232

Specialization Phase: Internship

Module number and title	E5998 Internship
Form and usability of the module	Elective module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Cycle of offer	Every semester
ECTS credits	6
Teaching method (hours per week)	Internship
Workload	175 internship working hours; 5 hours for the preparation of an internship report in line with the Internship Report form.
Module language	Language of the internship: any; Language of documents of proof: German or English
Participation requirements	Bachelor’s degree
Requirements for the Award of ECTS Credits, and Grading	Proof that the intern worked at least 175 hours, typically to be completed within a period of eight to twelve weeks; internship report and confirmations in accordance with the corresponding form; the internship is not graded
Goals and contents of the module	Application of specialized knowledge and approaches from the field of the economic sciences to practical problems; getting to know practical approaches relevant to the respective field of work; acquisition of key competences

Expected competences acquired after completion of the module	Upon completion of the module, students are able to apply the knowledge and understanding gained from the degree program in a professional context. They have developed and enhanced explanations and solutions in their area of work and obtained specialized knowledge relating to this field. They have reflected on work processes, evaluated them and, if applicable, (re)designed them. They have exchanged with their colleagues about information, ideas, problems and solutions and have formulated and defended positions and solutions. By completing an internship abroad, they may have developed their proficiency in a foreign language for use in business contexts.
Additional information	The internship meets the requirements for mandatory internships set out in the federal regulations on employing interns dated 1 January 2015 (Praktikantenrichtlinie Bund) and the supplementary information on internships (Durchführungsrundschreiben D5-31005/1#11 dated 4 May 2020, page 4: „Sehen Studiengänge ein Praktikum als Wahlpflichtmodul (Wahl zwischen einem Praktikum oder Seminar, Hausarbeit, Forschungsaufenthalt etc.) vor und entscheidet sich eine Studentin oder ein Student für ein Praktikum, gilt dieses als Pflichtpraktikum nach dieser Richtlinie.“)
Contact information	Name: Sebastian Herdtweck; Email: econgrad@uni-mannheim.de; Office: L7, 3-5, room 405; Office hours: upon appointment

Research Phase

Module number and title	E5999 Master’s Thesis
Form and usability of the module	Compulsory module for M.Sc. Economics in study track 1: Economics and study track 2: Competition and Regulation Economics
Cycle of offer	Every semester
ECTS credits	30
Teaching method (hours per week)	Written final thesis, length to be agreed with the supervisor, typically 20 to 70 pages
Workload	900 hours, optionally including a master’s colloquium
Module language	English
Participation requirements	Completion of at least 45 ECTS credits in the specialization phase and successful completion of at least one seminar
Requirements for the Award of ECTS Credits, and Grading	The master's thesis is passed if it is graded "fair" (4.0) ("ausreichend") or better.

Goals and contents of the module	The students work independently on a topic from the fields of Economics, Statistics, Econometrics, and/or Economic History. The thesis should demonstrate the ability to identify and apply relevant theories and methods in academic research and to present the results in a linguistically and formally appropriate way. The topic, assignment, and scope of the master's thesis shall be limited by the supervisor so that its completion is possible within the given period of time.
Expected competences acquired after completion of the module	Upon completion of the module, students have demonstrated the ability to apply the knowledge and understanding gained from the degree program in a research context, in particular: - largely independently develop a research idea and line of inquiry, - identify and evaluate scientific literature relevant for the research topic, - deepen and integrate specialized knowledge in the chosen field of research and independently close knowledge gaps, - identify and apply scientific concepts and methods suitable for the respective line of inquiry, - demonstrate profound skills in data collection, compilation, preparation, processing, and presentation, - exchange with their supervisor about information, ideas, problems, and solutions and formulate and defend positions and solutions, - recognize the specifics and limitations of their research, - reflect on the results obtained scientifically, socially and, if necessary, ethically, - present their results in a precise and consistent manner and in accordance with the formal requirements of a scientific work, - organize their scientific work process independently and - use English flexibly and effectively and produce clear, well-structured, detailed text on complex subjects.
Contact information	Name: Sebastian Herdtweck; Email: econgrad@uni-mannheim.de; Office: L7, 3-5, room 405; Office hours: upon appointment

Module number and title	E8999 Master's Thesis (Dissertation Proposal)
Form and usability of the module	Compulsory module for M.Sc. Economics in study track 3: Economic Research
Cycle of offer	Every semester
ECTS credits	20
Teaching method (hours per week)	Written final thesis, length to be agreed with the supervisor, typically 10 to 35 pages
Workload	600 hours
Module language	English

Participation requirements	Completion of at least 45 ECTS credits in the specialization phase
Requirements for the Award of ECTS Credits, and Grading	The master's thesis is passed if it is graded "fair" (4.0) ("ausreichend") or better.
Goals and contents of the module	The students work independently on a topic from the fields of Economics, Statistics, Econometrics, and/or Economic History. The thesis has two goals. Firstly, it should demonstrate the ability to identify and apply cutting-edge theories and methods to academic research and to present the results in a linguistically and formally appropriate way. Secondly, it should indicate the extent and nature of the student's dissertation research interests. The topic, assignment, and scope of the thesis shall be limited by the supervisor so that its completion is possible within the given period of time.
Expected competences acquired after completion of the module	Upon completion of the module, students have demonstrated the ability to apply the knowledge and understanding gained from the degree program in a research context, in particular: - independently develop a research idea and line of inquiry, - identify and evaluate scientific literature relevant for the research topic, - deepen and integrate highly specialized knowledge in the chosen field of research and independently close knowledge gaps, - identify, develop, and apply scientific concepts and methods suitable for the respective line of inquiry, - demonstrate profound skills in data collection, compilation, preparation, processing, and presentation, - exchange with their supervisor about information, ideas, problems, and solutions and formulate and defend positions and solutions, - recognize and evaluate the specifics and limitations of their research with special consideration of most recent academic research, - reflect on the results obtained scientifically, socially and, if necessary, ethically, - present their results in a precise and consistent manner and in accordance with the formal requirements of a scientific work, - organize their scientific work process independently and - use English flexibly and effectively and produce clear, well-structured, detailed text on complex subjects.
Contact information	Name: Sebastian Herdtweck; Email: econgrad@uni-mannheim.de; Office: L7, 3-5, room 405; Office hours: upon appointment