FRIEDRICH-ALEXANDER
UNIVERSITÄT
ERLANGEN-NÜRNBERG

SCHOOL OF BUSINESS,
ECONOMICS AND SOCIETY

Master's degree program

Master in Economics

Module handbook—summer semester 2021

www.dmse.wiso.fau.de

MODULE HANDBOOK

Master of Science in Economics

29.03.2021

MSE Master of Science in Economics

(English version below)

Bitte beachten Sie:

Veränderungen des Lehrangebots bedingt durch COVID-19

Nachdem ein Ende der Pandemie im Sommersemester noch nicht absehbar ist, steuert der Fachbereich in der Organisation der Veranstaltungen nach. Hierfür wird das Konzept WiSo-Virtuell, welches als Antwort auf die Corona-Krise entwickelt wurde, in das Konzept WiSo-Virtuell^{plus} überführt.

Die Studierbarkeit aller Studiengänge ist durch die Digitalisierung aller Pflichtmodule gesichert. Darüber hinaus können ausgewählte Lehrveranstaltungen parallel zu digitalen Inhalten mit Präsenzelementen angereichert sein, die auf freiwilliger Basis besucht werden können. Der Wahlbereich wird neben digitalen Angeboten so strukturiert, dass Module in Teilen oder zur Gänze in Präsenzlehre stattfinden.
Die Studierenden können je nach ihren Bedürfnissen und ihrer persönlichen Lebenssituation entscheiden, ob sie digital studieren wollen oder aber an weiteren Angeboten des Präsenzlernens teilnehmen wollen: „Digitales/virtuelles Studium PLUS freiwillige Präsenzveranstaltungen für ausgewählte Lehrveranstaltungen“. Vorausgesetzt das Infektionsgeschehen im Laufe des Semesters lässt dies zu.
Die FAU hat eine Corona-Satzung aufgrund von Einschränkungen im Lehr- und Prüfungsbetrieb durch das Corona-Virus SARS-CoV-2 veröffentlicht. Das Modulhandbuch in der vorliegenden Fassung enthält Corona-bedingte Änderungen an der Prüfungsform, die in den jeweiligen Modulbeschreibungen gekennzeichnet sind.
Folgende Szenarien sind auf der Grundlage der Corona-Satzung möglich:

- **Prüfungsformate unverändert**
  Das ursprünglich vorgesehene Prüfungsformat, z. B. eine Klausur bleibt bestehen. In diesen Modulbeschreibungen wurde keine Änderung vorgenommen.

- **Einmaliger Wechsel der Prüfungsform im Sommersemester**
  Der Wechsel der Prüfungsformate ist möglich, wenn die ursprünglich geplante Prüfungsform auf Grund des Corona-Virus nicht umsetzbar ist. Diese Änderungen finden Sie in den Modulbeschreibungen angeführt. Die ursprüngliche Prüfungsform wird bei dieser Variante durchgestrichen, die neue Prüfungsform ist in oranger Schriftfarbe angegeben.

- **Alternative Prüfungsformen verankern und später darüber entscheiden**
  Die Satzung sieht eine weitere Option vor. Es können zwei Alternativen festgelegt werden. Die Entscheidung für die eine oder die andere Alternative trifft der Modulverantwortliche und ist den Studierenden spätestens vier Wochen vor der Prüfung bekannt zu geben. Hier bleibt die ursprüngliche Prüfungsform zunächst bestehen, darunter finden Sie die alternative Prüfungsform eingefügt, ebenfalls in oranger Schriftfarbe. Vier Wochen vor der Prüfung wird die finale Prüfungsform durch den Modulverantwortlichen bekannt gegeben.

Im Informationssystem UnivIS finden Sie unter www.univis.fau.de demnächst für alle Veranstaltungen Angaben, in welchem Format (Online, Präsenz oder hybrid Online/Präsenz)

die Lehrveranstaltungen abgehalten werden sowie Detailinformationen zum jeweiligen Online-Format bzw. Informationen zu Zeit und Ort.
Ausführlichere Informationen zu den Modulen finden Sie auch in den jeweiligen Kursen auf StudOn. Treten Sie daher unbedingt den Kursen bei, die Sie dieses Semester besuchen möchten.
Weitere aktuelle Informationen entnehmen Sie bitte den Webseiten der Lehrstühle sowie Informationen zum digitalen Semester an der WiSo auch unter www.wiso-virtuell.fau.de

Please note

Changes of the teaching offer due to COVID-19

Since the end of the pandemic is not yet forecastable, the faculty is adjusting the organization of lectures. This is why the concept WiSo-Virtuell, which was developed as an answer to the corona crisis, has now been expanded to the concept WiSo-Virtuell^{plus}.

By digitalizing all compulsory modules, we are able to guarantee that it remains possible to study all of our study programs. Additionally, a selection of lectures will contain on-site teaching elements next to digital contents, which can be attended on a voluntary basis. The electives will be structured in a way that, next to digital offers, parts of lectures or whole lectures can take place on campus.
Students may decide whether they would like to make use of the on-site offers or prefer to continue studying digitally depending on their needs and personal situation: digital/virtual studies PLUS selected voluntary on-site lectures. All on-site offers are of course subject to the current rate of new infections during the semester.
Due to the restrictions in our teaching and examinatiDue to the restrictions in our teaching and examination activities caused by the corona virus SARS CoV-2, FAU has published a set of corona regulations. The module handbook in its present version contains changes in the examination method induced by corona, which are marked in the respective module description.
Based on the corona regulations, the following scenarios are possible:

- **Examination method unchanged**
  The originally intended examination method, e.g., an exam, persists. There are no changes to this module.

- **One-time change of the examination method in the summer term**
  Changes in the examination method are possible if the originally intended examination method is not realizable due to the corona virus. These changes can be found in the module description of the respective module. The original examination method is crossed out in this case, the new examination method is marked in orange font color.

- **Anchor alternative examination method and decide later**
  The corona regulations allow for a third alternative. It is possible to set two alternative examination methods. The decision on one of the two alternatives is made by the respective responsible person for the module and must be communicated to the students at least four weeks before the examination takes place. In this case, the originally intended examination method remains in place and you will find the

alternative examination method written below in orange font color. Four weeks before the examination, the final examination method will be announced by the responsible examiner.

Soon, you'll find detailed information on all lectures' format (online, on-site, or hybrid), as well as date, time, and place on the information system UnivIS, available at www.univis.fau.de.
More extensive information on the modules offered this term can also be found on StudOn. It is essential to join the courses you would like to attend on StudOn.
Further current information can be found on each department's websites, as well as the digital semester platform www.wiso-virtuell.fau.de.

MSE Master of Science in Economics

Table of contents

MSE Master of Science in Economics

Economics Study Plan (study start from winter semester 2015/16)			Distribution of workload per semester			
			1	2	3	4
	Type	ECTS	*ECTS*	*ECTS*	*ECTS*	*ECTS*
1st semester: compulsory subjects – 6 compulsory modules						
Mathematics for Economists	L	5	*5*			
Microeconomics	L	5	*5*			
Game Theory	L	5	*5*			
Macroeconomics: Business Cycles	L	5	*5*			
Macroeconomics: Economic Growth	L	5	*5*			
Applied Econometrics	L	5	*5*			
2nd and 3rd semester: elective subjects – choice of 10 economic elective modules + 2 free elective modules						
Elective compulsory subjects: 10 modules worth 5 ECTS credits each, including at least one economics seminar (5 ECTS) - Module group: Labor Economics - Module group: Macroeconomics and Finance - Module group: Public Economics - Module group: Energy Markets - Module group: Health Economics		50		*25*	*25*	
Free elective modules: 2 modules worth 5 ECTS credits each		10		*5*	*5*	
4th semester: Master's thesis						
Master's thesis		25				*25*
Master's thesis seminar		5				*5*
ECTS credits		**120**	***30***	***30***	***30***	***30***

Instructions for creating course schedule:

Students have the opportunity to create their own course schedule in our virtual course database *univis.* All available courses of each semester can be found here, sorted by specific areas of interest or a specific chair, including pieces of information about the lecturer, venues and content.

By accessing the following link https://univis.fau.de/ >> Vorlesungsverzeichnis >> Rechts- und Wirtschaftswissenschaftliche Fakultät (RW) >> Fachbereich Wirtschaftswissenschaften, all courses of the FAU's School of Business and Economics can be addressed. Bachelor's and Master's courses can be selected hereafter. A guidance of how to create your final course schedule can be found here (in German): www.wiso.fau.de/stundenplan

MSE Master of Science in Economics

Guideline for the form and extent of examinations

The form of examination that is valid for examinations at the school of business is defined in §16 of the examination regulation for master studies. Furthermore, the extent of examinations is regulated by §§17, 18 of the examination regulation for master studies. The examination regulation can be accessed via the following link:
http://www.zuv.fau.de/universitaet/organisation/recht/studiensatzungen/rw.shtml#Wirtschaft

If the module descriptions do not indicate othervise, the following forms of examination are valid at the school of business:

Form of examination		Extent in the Master
1.	**Written examination:**	
a.	Written examination	60/90/120 minutes
b.	Written assignment	ca. 15 pages
c.	Seminar paper	ca. 15 pages
2.	**oral examination**	ca. 20 minutes
3.	**Special cases, in particular:**	
a.	Research project/Project report	ca. 30 pages
b.	Placement report	ca. 4 pages
c.	Handout	ca. 2 pages
d.	Report	ca. 6 pages
e.	Short test	ca. 15 minutes
f.	Presentation	ca. 25 minutes
g.	Presentation/presentation paper	ca. 20 minutes/ca. 20 pages
h.	Discussion paper	ca. 10 pages
i.	Moderation	ca. 20 minutes
j.	Demonstration lesson	ca. 45 minutes
k.	Case study	ca. 25 minutes and/or 10 pages
l.	Class participation (formerly Discussion participation)	ca. 10 minutes
m.	Portfolio	k.A.
n.	Electronic examination	ca. 90 minutes
o.	Multiple-choice tes	ca. 30 minutes
p.	Research participation	ca. 60 minutes
q.	Reflection paper	ca. 10 minutes or 10 pages
r.	Strategic concept	ca. 6 pages

MSE Master of Science in Economics

Specialisations

Students can choose to study **specialisations**, in which a minimum of 15 ECTS are to be completed. If a module is allocated to more than one specialisation students may decide themselves which specialisation it is to be allocated to. To avoid confusion, please note that *specialisations* and *module groups* are different concepts!
The five available specialisations and their respective modules are the following:

	Term	Language	**Module group***
Specialisation: *Labor Economics*			
Public economics (54611)	S	EN	*Public*
Behavioral economics (53281)	S	EN	*Public*
Labor and personnel economics (52900)	S	EN	*Labor*
Mikroökonometrie und Machine Learning (53106)	S	DE	*Labor*
Ökonomie der Sozialpolitik (53082)	S	DE	*Public*
Personnel economics (53071)	S	EN	*Labor*
Seminar behavioral economics 1 (52930)	S/W	EN	*Public*
Spatial economics (55960)	S	EN	*Public*
Seminar economics of human capital (52391)	S	EN	*Labor*
Empirische Arbeitsmarktforschung (53370)	W	DE	*Labor*
Labor market policy (52910)	W	EN	*Labor*
Labor markets: A macroeconomic perspective (53344)	W	EN	*Macro*
Literaturseminar zu aktuellen Fragen der Arbeitsmarktökonomie (52390)	W	DE	*Labor*
Panel and evaluation methods (53055)	W	EN	*Labor*
Seminar behavioral economics 2 (52940)	W	EN	*Public*
International trade and labor (57130)	S	EN	*Macro*
Labor markets in the knowledge economy (57131)	W	EN	*Labor*
Specialisation: *Macroeconomics and Finance*			
Public economics (54611)	S	EN	*Public*
Asset liability management (56530)	S	DE	*Macro*
Financial engineering und structured finance (56270)	S	DE	*Macro*
Lebensversicherung (56540)	S	DE	*Macro*
Mikroökonometrie und Machine Learning (53106)	S	DE	*Labor*
Multivariate time series analysis (53313)	S	EN	*Macro*
European topics in economics (57400)	S	EN	*Macro*
Bayesian Econometrics (57340)	S	EN	*Macro*
Macroeconomic stabilization in severe economic crises (52392)	S	EN	*Macro*
Banking supervision: Bank rating, stress testing, financial stability (52560)	W	EN	*Macro*
Finanz- und Bankmanagement (53770)	W	DE	*Macro*

International finance (55291)	W	EN	*Macro*
Labor markets: A macroeconomic perspective (53344)	W	EN	*Macro*
Panel and evaluation methods (53055)	W	EN	*Public*
Versicherungs- und Risikotheorie (56470)	W	DE	*Macro*
International trade and labor (57130)	S	EN	*Macro*

Specialisation: *Public Economics*

Public economics (54611)	S	EN	*Public*
Behavioral economics (53281)	S	EN	*Public*
Ökonomie der Sozialpolitik (53082)	S	DE	*Public*
Seminar behavioral economics 1 (52930)	S/W	EN	*Public*
Seminar public economics 1 (52950)	S	EN	*Public*
Spatial economics (55960)	S	EN	*Public*
Economics of innovation (53295)	S	EN	*Public*
Seminar economics of human capital (52391)	S	EN	*Labor*
Panel and evaluation methods (53055)	W	DE	*Labor*
Seminar behavioral economics 2 (52940)	W	EN	*Public*
Seminar public economics 2 (52960)	W	EN	*Public*
Development economics (57330)	W	EN	*Public*

Specialisation: *Energy Markets*

Advanced industrial organization (58050)	S	EN	*Energy*
Behavioral economics (53281)	S	EN	*Public*
Seminar energy markets (52990)	S	DE/EN	*Energy*
Linear optimization (52971)	W	DE	*Energy*
Combinatorial optimization (52972)	W	DE	*Energy*
Methods and applications of mathematical optimization (52980)	W	DE	*Energy*
Quantitative methods in energy market modelling (52591)	W	EN	*Energy*
Seminar behavioral economics 2 (52940)	W	EN	*Public*
Seminar Optimierung in Energiemärkten (54340)	W	DE	*Energy*
Mathematical optimization for communications & signal processing (53180)	W	EN	*Energy*
Empirical environmental economics (53285)	W	EN	*Energy*
Economics of climate change (53286)	W	EN	*Energy*

Specialisation: *Health Economics*

Public economics (54611)	S	EN	*Public*
Behavioral economics (53281)	S	EN	*Public*
Ökonomie der Sozialpolitik (53082)	S	DE	*Public*
Seminar behavioral economics 1 (52930)	S/W	EN	*Public*

The economics of health insurance (56792)	S	EN	*Health*
The supply of medical services (52153)	S	DE	*Health*
Panel and evaluation methods (53055)	W	EN	*Labor*
Applied empirical health economics (52162)	W	DE	*Health*
Seminar behavioral economics 2 (52940)	W	EN	*Public*
Gesundheitsökonomische Evaluationen I (54821)	S	DE	*Health*
Gesundheitsökonomische Evaluationen II (52850)	W	DE	*Health*

Miscellaneous

(Modules that do not belong to any specialisation)

Economic internship (56441)	W/S	*Public*
Exchange module 1 (55693)	W/S	*Public*
Exchange module 2 (55694)	W/S	*Public*

Module groups (Modulgruppen) as defined in the examination regulations and study plan: Labor (Labor Economics), Public (Public Economics), Macro (Macroeconomics and Finance), Energy (Energy Markets), and Health (Health Economics).

Compulsory Subjects

1	**Module name** MSE-52890	**Applied econometrics**	**5 ECTS**
2	Courses/lectures	Lecture & exercise: Applied econometrics	5 ECTS
3	Lecturers	Prof. Tauchmann and Assistants	

4	**Module coordinator**	Prof. Tauchmann
5	**Contents**	The linear Regression model based on a firm theoretical basis and using rigorous notation; endogeneity and instrumental variables estimation; the generalized regression model and heteroscedasticity, the basics of maximum likelihood estimation; using STATA® for applied econometric work
6	**Learning objectives and skills**	The students deepen their knowledge of linear and non-linear estimation techniques as well as their knowledge of hypotheses testing; students learn how to apply their methodical knowledge to empirical work using the software STATA® and how to interpret estimation results.
7	**Recommended prerequisites**	Basic knowledge of statistics and econometrics as covered by the optional preparatory course (levelling course).
8	**Integration in curriculum**	1. semester
9	**Module compatibility**	Master Economics: Compulsory subjects Master FACT: Vertiefungsbereich (Modulgruppe Interdisziplinäre Module)
10	**Method of examination**	90-minute written examiniation (100%, partly multiple choice).
11	**Grading procedure**	Written examination (100%)
12	**Module frequency**	Annually in the winter term
13	**Workload**	Attendance: 60 h Independent study: 90 h
14	**Module duration**	Weekly 90 min. lecture and 90 min. exercise class over the lecture period (1 semester)
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Greene, W. H. (2012): Econometric Analysis, Pearson, 7th ed.

Compulsory Subjects

1	**Module name** MSE-53201	**Game theory**	**5 ECTS**
2	Courses/lectures	Lecture: Game theory (2 SWS) Exercise: Game theory (2 SWS)	5 ECTS
3	Lecturers	Prof. Grimm and assistants	
4	**Module coordinator**	Prof. Grimm	
5	**Contents**	Game Theory analyzes the behavior of rational agents in decision-making situations in which several agents are involved. Unlike Decision Theory, Game Theory studies situations in which the utilities of the individual agents are not only dependent on their own decisions, but also on those of the other agents. The course seeks to apply the basic game theoretical concepts (e.g., Nash equilibrium, subgame perfect equilibrium) to more complicated economic interactions. In addition, it introduces advanced concepts, such as the analysis of the games with incomplete information, auction theory and briefly, elements of mechanism design. We discuss different equilibrium concepts and their various refinements in the context of these games.	
6	**Learning objectives and skills**	Students acquire a more formal understanding of game theoretical concepts and learn to differentiate between different types of games and their appropriate solution concepts. They learn the applications of these concepts to advanced economic problems. Students should be able to formally approach real-world multi-person decision problems and give economic predictions based on the equilibrium concepts studied in the course.	
7	**Recommended prerequisites**	Basic knowledge of game theory and its core applications	
8	**Integration in curriculum**	1. semester	
9	**Module compatibility**	Master Economics: Compulsory subjects Master Sozialökonomik: freier Vertiefungsbereich Master Arbeitsmarkt und Personal: Wahlbereich	
10	**Method of examination**	90 minute written examination (80%); written assignments (individual or group work possible) of up to 2000 words based on applying game theoretical concepts on economic issues (20%)	
11	**Grading procedure**	80% written examination and 20 % written assignments	
12	**Module frequency**	Annually in the winter term	
13	**Workload**	Attendance: 60 h Independent study: 90 h	
14	**Module duration**	1 semester	
15	**Teaching and examination language**	English	
16	**(Recommended) reading**	*Main Textbook:* • Fudenberg, D. and Tirole, J. (1991), Game Theory, Cambridge, MIT Press. • Krishna, V. (2002), Auction Theory, Academic Press. *Further (helpful) reading:* • Osborne, M. and Rubenstein, A. (1994), A Course in	

		Game Theory, Cambridge, MIT Press. Maschler, M., Solan E. and Zamir, S. (2013), Game Theory, Cambridge University Press

Compulsory Subjects

1	**Module name** MSE-53212	**Macroeconomics: Business cycles**	**5 ECTS**
2	Courses/lectures	L: Advanced macroeconomics (2 SWS) E: Exercise (2 SWS)	2.5 ECTS 2.5 ECTS
3	Lecturers	Prof. Merkl	

4	**Module coordinator**	Prof. Merkl
5	**Contents**	-Stylized facts of the business cycle -Business cycle theories -Business cycle and the labor market -Monetary theory and policy
6	**Learning objectives and skills**	Students - learn about modern dynamic business cycle theory - learn about dynamic labor market theory (search and matching) - apply standard techniques (e.g., intertemporal optimization, loglinearization or simple simulations) - learn about modern monetary theory - - compare the implications of monetary theory with modern policy making
7	**Recommended prerequisites**	Advanced Mathematics, Macroeconomics (Bachelor)
8	**Integration in curriculum**	1. semester
9	**Module compatibility**	Master Economics: Compulsory subjects Master Arbeitsmarkt und Personal: Wahlbereich Master Sozialökonomik: freier Vertiefungsbereich Master FACT: Vertiefungs- und Ergänzungsbereich
10	**Method of examination**	Written examination (60 Min.). Students can improve their grade through two assignments: one programming assignment with Matlab (about 30 lines of code) and one analytical problem (about four written pages)**.** This requires the written exam to be graded not worse than 4.0; the max. improvement is 0.3 grades.
11	**Grading procedure**	Written examination (100%)
12	**Module frequency**	Annually in the winter term
13	**Workload**	Attendance: 60 h Independent study: 90 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Gali, J., Monetary Policy, Inflation, and the Business Cycle: An Introduction to the New Keynesian Framework and its Applications, 2015, second edition.

Compulsory Subjects

1	**Module name** MSE-53221	**Macroeconomics: Economic growth**	**5 ECTS**
2	Courses/lectures	L: Macroeconomics: Economic growth (2 SWS) E: Macroeconomics: Economic growth (2 SWS)	5 ECTS
3	Lecturers	Prof Büttner and assistants	

4	**Module coordinator**	Prof. Büttner
5	**Contents**	The lecture is concerned with the development of the economy over time, in particular with economic growth. In a first step the lecture considers how dynamic issues are dealt with in the context of traditional macroeconomics. We then go on and develop a dynamic model in which households, firms, and the government form expectations about future conditions and take account of future implications of current decisions. This model is varied to see implications of uncertainty and overlapping generations. Finally we discuss the sources and limits of economic growth.
6	**Learning objectives and skills**	Students • learn how to derive a standard macroeconomic model from a set of optimal decisions of agents and their (intertemporal) constraints • - learn how to use the model for basic predictions about effects of changes in endowments and starting conditions on short- and long-term equilibria - -learn to modify the basic model to take account of uncertainty, infinite time and overlapping generations and understand the difficulties that are associated with some of these extensions - -learn to apply techniques of intertemporal optimization - -get acquainted with basic characteristics of economic growth - -learn conditions under which the macroeconomic model is consistent with continuous economic growth - learn about the limits and determinants of economic growth
7	**Recommended prerequisites**	
8	**Integration in curriculum**	1. Semester
9	**Module compatibility**	Master Economics: Compulsory subjects Master Arbeitsmarkt und Personal: Wahlbereich Master Sozialökonomik: freier Vertiefungsbereich
10	**Method of examination**	Written examination (90 minutes)
11	**Grading procedure**	Written examination (100%)
12	**Module frequency**	Annually in the winter term
13	**Workload**	Attendance: 45 h Independent study: 90 h

14	**Module duration**	1 semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Romer, D. (1996): *Advanced Macroeconomics,* 2. edition, Mc-Graw-Hill.

Compulsory Subjects

1	**Module name** MSE-53231	**Mathematics for economists**	**5 ECTS**
2	Courses/lectures	L: Mathematics for economists (2 weekly lecture hours) E: Mathematics for economists (1 weekly lecture hour)	2.5 ECTS 2.5 ECTS
3	Lecturers	Prof. Martin and assistants	

4	**Module coordinator**	Prof. Martin
5	**Contents**	The main focus of this lecture is on vector spaces, eigenvalues, quadratic forms, analysis of n variables including Taylor derivatives, finite difference and differential equation as well as optimization.
6	**Learning objectives and skills**	The aim of this module is to practice common mathematical techniques, which are required for advanced courses in Economics.
7	**Recommended prerequisites**	Basic knowledge as known from school and typical math courses given within Bachelor programs on Economics, see for instance Sydsætter, Knut und Hammond, Peter (2008), Essential *Mathematics for Economics Analysis*, Prentice Hall, or the Bachelor chapters in Mosler, Karl, Rainer Dyckerhoff und Christoph Scheicher (2009), *Mathematische Methoden für Ökonomen*, Springer-Verlag (in German).
8	**Integration in curriculum**	1. semester: This course is a block course at the beginning of the term and starts before the official lecture period.
9	**Module compatibility**	Master Economics: Compulsory subjects Master Sozialökonomik: freier Vertiefungsbereich Master Arbeitsmarkt und Personal: Wahlbereich
10	**Method of examination**	Written examination (90 Min.)
11	**Grading procedure**	Written examination (100 %)
12	**Module frequency**	Annually in the winter term
13	**Workload**	Attendance: 45 h Independent study: 105 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Sydsætter, Knut und Hammond, Peter (2008), Further *Mathematics for Economics Analysis*, Prentice Hall; Mosler, Karl; Dyckerhoff, Rainer und Scheicher, Christoph (2009), *Mathematische Methoden für Ökonomen*, Springer Verlag (in German).

Compulsory Subjects

1.	**Module name** MSE-53191	**Microeconomics**	**5 ECTS**
2.	Courses/lectures	Lecture: Microeconomics (2 SWS) Exercise: Microeconomics (2 SWS)	5 ECTS
3.	Lecturers	Prof. Rincke	

4	**Module coordinator**	Prof. Rincke
5	**Contents**	Theory of the Consumer, Theory of the Firm, Partial Equilibrium, General Equilibrium, Anomalies
6	**Learning objectives and skills**	Students are made familiar with the fundamental concepts of microeconomics on an advanced level, including advanced formal mathematical methods. The lecture covers topics in the theory of the consumer, the theory of the firm, partial equilibrium, general equilibrium, and anomalies in behavior in relation to the standard model. In the Exercises course, students learn how to apply these concepts to selected economic problems in various settings. The module is of fundamental importance for Master students who want to advance to studying applied problems in all field of applied micro, including labor economics, public economics, and industrial organization.
7	**Recommended prerequisites**	Basic training in formal microeconomic techniques
8	**Integration in curriculum**	1. semester
9	**Module compatibility**	Master Economics): Compulsory subjects Master Sozialökonomik: freier Vertiefungsbereich Master Arbeitsmarkt und Personal: Wahlbereich Master Management: Vertiefungsbereich
10	**Method of examination**	Written examination (90 minutes) and Presentation (Exercise)
11	**Grading procedure**	Written examination 80% Presentation 20%
12	**Module frequency**	Annually in the winter term
13	**Workload**	Attendance: 45 h Self-study: 105 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Jehle, Geoffrey A. und Reny, Philip J. (2001), Advanced Microeconomic Theory, 2nd ed., Addison-Wesley

Elective compulsory subjects

Module group: Labor Economics

1	**Module name** A&P-53370	**Empirische Arbeitsmarktforschung** (**Empirical labor market research**)	**5 ECTS**
2	Courses/lectures	HS: Empirische Arbeitsmarktforschung (3 SWS)	5 ECTS
3	Lecturers	Prof. Schnabel und Assistierende	

4	**Module coordinator**	Prof. Schnabel
5	**Contents**	Mittels vorgegebener Datensätze werden ökonometrische Analysemethoden auf aktuelle Fragestellungen der Arbeitsmarktökonomik angewendet und diese eigenständig empirisch untersucht.
6	**Learning objectives and skills**	Die Studierenden lernen, Arbeitsmarktstudien kompetent zu interpretieren, zu bewerten und zu hinterfragen. Sie verstehen quantitative Methoden differenziert einzusetzen, Hypothesen zu bilden und diese empirisch zu überprüfen. Durch eigenes Arbeiten am PC werden sie in die Lage versetzt, selbständig Forschungsdesigns zu entwickeln, ökonometrische Analysen durchzuführen und deren Ergebnisse aufzubereiten. Zudem verstehen sie es, Erkenntnisse aus fremden oder eigenen empirischen Arbeiten prägnant darzustellen, kritisch zu bewerten und der (Fach-) Öffentlichkeit zu vermitteln.
7	**Recommended prerequisites**	Kenntnisse in Arbeitsmarktökonomie und Ökonometrie
8	**Integration in curriculum**	3. Semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master Arbeitsmarkt und Personal: Wahlbereich Master Sozialökonomik: Vertiefungsbereich
10	**Method of examination**	Kurztests und Hausarbeit
11	**Grading procedure**	Durchschnittsnote: Kurztests 20 %, Note Hausarbeit 80 %
12	**Module frequency**	Jährlich im Wintersemester
13	**Workload**	Präsenzzeit: 45 h Eigenstudium: 105 h
14	**Module duration**	1 Semester
15	**Teaching and examination language**	Deutsch
16	**(Recommended) reading**	Wechselnde aktuelle Forschungsliteratur

Module group: Labor Economics

1	**Module name** MSE-52900	**Labor and personnel economics**	**5 ECTS**
2	Courses/lectures	L: Labor and personnel economics E: Excercise labor and personnel economics	3 ECTS 2 ECTS
3	Lecturers	Prof. Schnabel and assistants	

4	**Module coordinator**	Prof. Schnabel
5	**Contents**	- Labor supply - Human capital - Labor demand - Search and matching - Mobility and migration - Wages - Employment relationships and work incentives - Unemployment
6	**Learning objectives and skills**	The course imparts the major methods and insights of the analysis of labor markets and employment relationships. Students - learn the major determinants of labor supply and demand - understand the importance of human capital and work incentives - analyze the functioning of labor markets and the main reasons for unemployment - critically reflect labor market theories - are able to interpret and scrutinize empirical studies - evaluate labor market policy and firms' compensation policy.
7	**Recommended prerequisites**	Basic knowledge of microeconomics and empirical research methods/econometrics
8	**Integration in curriculum**	2. semester
9	**Module compatibility**	Master in Economics: Elective compulsory subjects Master Sozialökonomik: Vertiefungsbereich
10	**Method of examination**	Written examination (90 minutes)
11	**Grading procedure**	Written examination (100%)
12	**Module frequency**	Annually in the summer term (from summer term 2016)
13	**Workload**	Presence: 40 h Individual studies: 110 h
14	**Module duration**	1. Semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Cahuc, P./Carcillo, S./Zylberberg, A.: *Labor Economics*, 2nd ed., Cambridge, Mass. 2014 Garibaldi, P.: *Personnel Economics in Imperfect Labour Markets*, Oxford 2006

Module group: Labor Economics

1	**Module name** MSE-52910	**Labor market policy**	**5 ECTS**
2	Courses/lectures	S: Labor market policy	5 ECTS
3	Lecturers	Prof. Stephan	

4	**Module coordinator**	Prof. Stephan
5	**Contents**	The module analyzes main topics in labor market policy, with a focus on evaluation studies of labor market institutions and active and passive labor market programs
6	**Learning objectives and skills**	Students • acquire specialized knowledge on policy debates, theoretical backgrounds, evaluation techniques, and empirical evidence for core labor market policies. • assess theoretical approaches, applied methods, and empirical results of recent research papers. • clearly present and scrutinize complex facts and results. • discuss presentations of fellow students and provide constructive feedback.
7	**Recommended prerequisites**	Solid knowledge in microeconomics and econometrics
8	**Integration in curriculum**	3. semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master Arbeitsmarkt und Personal: Wahlbereich
10	**Method of examination**	Seminar paper, presentation of seminar paper, class participation in terms of discussing a seminar paper of a fellow student
11	**Grading procedure**	Seminar paper (100 %), presentation of seminar paper (passed), class participation in terms of discussing a seminar paper of a fellow student (passed)
12	**Module frequency**	Annually in the winter term (from winter term 2016/17)
13	**Workload**	Presence: 30 h Independent study: 120 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Boeri, T., van Ours. J. (2013). The Economics of Imperfect Labor Markets, 2nd edition. Princeton: Princeton University Press. Varying recent literature

Module group: Labor Economics

1	**Module name** MSE-52390	**Literaturseminar zu aktuellen Fragen der Arbeitsmarktökonomie** **(Literature seminar on current issues of labor economics)**	**5 ECTS**
2	Courses/lectures	S: Literaturseminar zu aktuellen Fragen der Arbeitsmarktökonomie (3 SWS)	5 ECTS
3	Lecturers	Prof. Bellmann	

4	**Module coordinator**	Prof. Bellmann
5	**Contents**	Auswertung, Interpretation und Diskussion bestehender Studien zu aktuellen Arbeitsmarktthemen (wie z.B. Fragen der Entlohnung, der Qualifikation und Bildung, der Arbeitsbeziehungen und der Arbeitsmarktpolitik). Der Schwerpunkt liegt dabei auf mikroökonometrischen Studien.
6	**Learning objectives and skills**	Die Studierenden lernen anhand aktueller empirischer Studien aus der Literatur, Arbeitsmarktstudien kompetent zu interpretieren, zu bewerten und zu hinterfragen. Sie verstehen quantitative Methoden differenziert einzusetzen, Hypothesen zu bilden und diese empirisch zu überprüfen. Zudem verstehen sie es, Erkenntnisse aus fremden empirischen Arbeiten prägnant darzustellen, kritisch zu bewerten und der (Fach-) Öffentlichkeit zu vermitteln. Sie erschließen dabei eigenständig Informationen, erstellen Präsentationen und geben Kommiliton(inn)en wertschätzendes Feedback zu deren Präsentationen.
7	**Recommended prerequisites**	Kenntnisse in Arbeitsmarktökonomie und Ökonometrie
8	**Integration in curriculum**	3. Semester
9	**Module compatibility**	Master Arbeitsmarkt und Personal: Wahlbereich Master Economics: Elective compulsory subjects Master Sozialökonomie: Sozialökonomische Vertiefungsbereich
10	**Method of examination**	Hausarbeit und Präsentation
11	**Grading procedure**	Note Hausarbeit 80 %, Note Präsentation 20 %
12	**Module frequency**	Jährlich im Wintersemester
13	**Workload**	Präsenzzeit 45 h Eigenstudium 105 h
14	**Module duration**	1 Semester
15	**Teaching and examination language**	Deutsch
16	**(Recommended) reading**	Wechselnde aktuelle Forschungsliteratur

Module group: Labor Economics

1	**Module name** MSE-53055	**Panel and evaluation methods**	**5 ECTS**
2	Courses/lectures	L: Panel and evaluation methods (2 SWS) E: Panel and evaluation methods (1 SWS)	2,5 ECTS 2,5 ECTS
3	Lecturers	Prof. Riphahn and assistants	

4	**Module coordinator**	Prof. Riphahn
5	**Contents**	Endogeneity in the linear regression model; instrumental variables estimation; static and dynamic panel data models; matching; difference-in-differences estimation; regression discontinuity design; quantile regression; practical application of methods using statistics software STATA
6	**Learning objectives and skills**	Based on the introductory econometrics module „Ökonometrie 1“ students acquire specialized knowledge in panel und evaluation methods and apply it using the statistics software STATA. Students evaluate to what degree empirical patterns can be interpreted as causal and decide to what extent problems of endogeneity can be solved via panel data or exogeneous variation Students can produce own empirical analyses.
7	**Recommended prerequisites**	Basic knowledge in statistics and econometrics
8	**Integration in curriculum**	3. semester
9	**Module compatibility**	Master Arbeitsmarkt und Personal: compulsory subject Master Marketing für Studierende mit Studienbeginn ab WS17/18: - Vertiefungsbereich Marketing Research - Wahlpflichtbereich der Modulgruppe „Statistik“ im Vertiefungsbereich Marketing Management (MSE-53054) Master Marketing für Studierende mit Studienbeginn vor WS17/18: - Vertiefungsbereich Marketing Research - Wahlpflichtbereich der Modulgruppe „Methoden“ im Vertiefungsbereich Marketing Management (MSE-53054) Master Sozialökonomik: Pflichtbereich „Vertiefung Methoden“ oder freier Vertiefungsbereich Master FACT: Vertiefungsbereich (Modulgruppe Interdisziplinäre Module) Master Economics: Elective compulsory subjects Master Management: Vertiefungsbereich
10	**Method of examination**	Written exam (60 Min.)
11	**Grading procedure**	100 % written exam (a voluntarily submitted homework can account for 20 % of the final grade if it improves the grade. In the homework an empirical analysis is performed based on Stata. The final grade can be improved by up to 0.7 points. However, the exam must be passed. The homework only counts towards final grades in the semester in which they are produced, i.e. only in the winter semester.

12	**Module frequency**	Annually in the winter semester (blocked format in the 2nd half of the semester)
13	**Workload**	Presence: 45 h Independent study: 105 h
14	**Module duration**	Second half of the winter semester (blocked, each week 4 SWS lecture and 2 SWS exercise)
15	**Teaching and examination language**	Englisch
16	**(Recommended) reading**	Hsiao, Cheng (2003), *Analysis of Panel Data*, 2nd ed. Cambridge Univ. Press. Lee, Myoung-Jae (2005), *Micro-Econometrics for Policy, Program and Treatment Effects*, Oxford Univ. Press. Wooldridge, J.M.(2010), *Econometric Analysis of Cross Section and Panel Data,* 2.A., MIT Press. Verbeek, Marno (2012)*, A Guide to Modern Econometrics*, 4. A., Wiley.

Module group: Labor Economics

1	**Module name** MSE-53106	**Mikroökonometrie und Machine Learning (Microeconometrics and machine learning)**	**5 ECTS**
2	Courses/lectures	V: Mikroökonometrie und Maschinelles Lernen (2 SWS) Ü: Mikroökonometrie und Maschinelles Lernen (1 SWS)	2,5 ECTS 2,5 ECTS
3	Lecturers	Prof. Riphahn und Assistierende	

4	**Module coordinator**	Prof. Riphahn
5	**Contents**	Konzept der Maximum-Likelihood-Schätzung in Matrixnotation; Schätz- und Testverfahren für diskrete abhängige Variablen, Tobit-Modelle, Selektionsmodelle, Verweildauermodell, Zähldatenmodelle; Maschinelles Lernen für stetige und diskrete abhängige Variablen, supervised und unsupervised learning; Praktische Umsetzung der Lerninhalte mit Hilfe der Statistiksoftware STATA
6	**Learning objectives and skills**	Aufbauend auf der Veranstaltung „Ökonometrie“ erwerben die Studierenden spezialisierte Kenntnisse in nicht linearen Schätz- und Testverfahren sowie in den Verfahren des maschinellen Lernens und wenden diese mit Hilfe der Statistiksoftware STATA an. Sie diskutieren und bewerten die Geeignetheit verschiedener Modelle im praxisbezogenen Kontext und erstellen eigene empirische Analysen im Rahmen einer freiwilligen Hausarbeit.
7	**Recommended prerequisites**	Grundkenntnisse Statistik und Einführungsveranstaltung Ökonometrie
8	**Integration in curriculum**	2. Semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master Sozialökonomik: freier Vertiefungsbereich oder im Pflichtbereich „Vertiefung Methoden“ Master in Management: Vertiefungsbereich Master Marketing: Wahlpflichtbereich der Modulgruppe „Methoden“Master Arbeitsmarkt und Personal: Wahlbereich
10	**Method of examination**	Klausur (60 Min.)
11	**Grading procedure**	100 % Klausur (Bei Notenverbesserung ist eine freiwillige, vorlesungsbegleitend ggf. in Gruppenarbeit erstellte Hausarbeit zu 20 % auf die Endnote anrechenbar, in der auf Basis eines Datensatzes und mit Hilfe von Stata eine empirische Fragestellung bearbeitet wird. Dabei kann sich die Klausurnote um bis zu 0,7 Notenpunkte verbessern. Die Prüfung ist nur bestanden, wenn auch die Klausur bestanden ist. Die Hausarbeit wird nur in dem Semester gewertet, in dem sie erstellt wurde.)
12	**Module frequency**	Jährlich im Sommersemester
13	**Workload**	Präsenzzeit: 45 h Eigenstudium: 105 h
14	**Module duration**	1 Semester
15	**Teaching and examination language**	Deutsch

16	**(Recommended) reading**	Cameron, Colin und Pravin K. Trivedi (2005), *Microeconometrics. Methods and Applications*, Cambridge Univ. Press. Verbeek, Marno (2012)*, A Guide to Modern Econometrics*, 4. A., Wiley. Wooldridge, J.M.(2010), *Econometric Analysis of Cross Section and Panel Data,* 2.A., MIT Press. Hastie, T., R. Tibsharani, und J., 2009, *The Elements of Statistical Learning: Data Mining, Inference and Prediction*, Springer

Module group: Labor Economics

1	**Module name** MSE-53071	**Personnel economics**	5 ECTS
2	Courses/lectures	S: Personnel economics (2SWS) (Compulsory attendance)	5 ECTS
3	Lecturers	Prof. Riphahn and team	

4	**Module coordinator**	Prof. Riphahn
5	**Contents**	The module addresses key topics of modern personnel economics research, such as hiring, contract design, motivation, training, teamwork, and group incentives.
6	**Learning objectives and skills**	Students acquire specialized knowledge of personnel economics theories and research questions. By preparing short thesis papers and a seminar paper students learn to evaluate and critically discuss methodological choices and substantive conclusions drawn in recent empirical research papers. Students assess theoretical approaches, applied empirical methods and results of recent research papers. Students present and scrutinize complex facts and results. They discuss the theoretical background, empirical method, and empirical evidence on personnel economics research contributions, discuss presentations of fellow students and provide constructive feedback. Compulsory attendance is required for discussion and feedback processes.
7	**Recommended prerequisites**	Basic knowledge of microeconomics and econometrics
8	**Integration in curriculum**	2. Semester
9	**Module compatibility**	Master Economics): Elective compulsory subjects Master Arbeitsmarkt und Personal: Wahlbereich Master Sozialökonomik: freier Vertiefungsbereich oder im Bereich „Spezielle VWL“ Master Wirtschaftspädagogik, Studienrichtung I: Wahlbereich
10	**Method of examination**	S Seminar paper (group work), Handouts
11	**Grading procedure**	S: Seminar paper (60%), Handouts (40%)
12	**Module frequency**	annually in the summer term. Due to Corona additionally in WS 2020/21.
13	**Workload**	Presence: 45 hours Independent study: 105 hours
14	**Module duration**	1 Semester
15	**Teaching and examination language**	English, written contributions can be submitted in German language
16	**(Recommended) reading**	Garibaldi, Pietro (2006), *Personnel Economics in Imperfect Labour Markets*, Oxford Univ. Press. Neilson, William S. (2007), *Personnel Economics*, Pearson Educ. Inc. Lazear, Edward P. (1998), *Personnel Economics*, MIT Press. Sowie eine Aufsatzsammlung.

Module group: Labor Economics

1	**Module name** MSE-57131	**Labor markets in the knowledge economy**	**ECTS** **5**
2	Courses/lectures	L: Labor markets in the knowledge economy (2 hours) T: Labor markets in the knowledge economy (2 hours)	ECTS 5
3	Lecturers	Prof. Dr. Markus Nagler	

4	**Module coordinator**	Prof. Dr. Markus Nagler
5	**Contents**	The course analyzes topics in labor economics and their connection to innovation and technology. We will mostly discuss classical topics in labor economics such as labor supply and migration which are seen through a technology and knowledge economy perspective. It is mainly an empirical course: labor economics is a front-runner in the use of econometrics and data.
6	**Learning objectives and skills**	Students know the key issues in the intersection of labor and innovation economics. They are able to assess current research in the area and are able to relate its results to fundamental policy questions in the area. Students are acquainted with important empirical approaches in the area.
7	**Recommended prerequisites**	Basic microeconomics, basic econometrics
8	**Integration in curriculum**	3rd semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master Sozialökonomik: elective course (freier Vertiefungsbereich) Master in Management: elective course (Vertiefungsbereich) Master International Business Studies: elective course
10	**Method of examination**	Written exam (90 minutes) If students cannot participate in the written exam due to the current pandemic, an oral examination is possible
11	**Grading procedure**	Written exam (100%)
12	**Module frequency**	Winter term
13	**Workload**	Presence: 60 h Independent study: 90 h Lecture notes are provided throughout the course (usually around one week in advance).
14	**Module duration**	1 semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Angrist, Joshua and Jörn-Steffen Pischke (2008). “Mostly Harmless Econometrics”, Princeton University Press. Autor, David H. “Why are there still so many jobs? The history and future of workplace automation.” The Journal of Economic Perspectives 29.3 (2015): 3-30.

Module group: Labor Economics

17	**Module name** MSE-52391	**Seminar economics of human capital**	**5 ECTS**
18	Courses/lectures	Seminar economics of human capital (3 SWS)	5 ECTS
19	Lecturers	Prof. Nagler, Prof. Rincke	

20	**Module coordinator**	Prof. Nagler, Prof. Rincke
21	**Contents**	Topics in the Economics of Human Capital
22	**Learning objectives and skills**	Students - study selected parts of the academic literature on the economics of human capital and learn how to deal with this literature - learn how to identify relevant contributions in large bodies of economic literature - learn about up-to-date methods (theory and empirics) in the economics of human capital - learn how to read economic papers and to evaluate and assess contributions, both in terms of theory and empirical methods - learn how to delineate conclusions from the academic literature in terms of policy implications and recommendations - learn how to structure and write academic theses in economics - expand their skills in terms of presentation techniques and participation in academic discussion
23	**Recommended prerequisites**	All techniques and methods that are part of the curriculum in the first semester of the study program MSE
24	**Integration in curriculum**	2nd semester of the study program MSE
25	**Module compatibility**	MSE (Master of Economics): Elective compulsory subjects
26	**Method of examination**	Seminar paper (15 pages), Presentation, class participation: Discussion of other participants' presentations *These three partial examinations are one uniform examination in which the individual partial examinations are inseparable. For the existence of the module, according to § 19 (1) sentences 2 and 4 of the MPOWiWi, as amended, all partial examinations must be passed in the same semester. Notwithstanding § 25 (1) sentences 2 and 3 of the MPOWIWI, it is not possible to repeat only one of the failed partial examinations because of the inseparable relation of the partial examinations to each other. Failure to receive one of the partial services requires the repetition of the entire examination*
27	**Grading procedure**	Seminar paper 50%, Presentation 30%, class participation 20%
28	**Module frequency**	Annually in the summer term
29	**Workload**	Seminar attendance: 45 h Independent study: 105 h
30	**Module duration**	1 semester
31	**Teaching and examination language**	English
32	**(Recommended) reading**	Will be provided

Module group: Macroeconomics and Finance

1	**Module name** FACT-56530	**Asset liability management (Versicherungen)** **(Asset liability management (insurance)**	**5 ECTS**
2	Courses/lectures	V + Ü (2 + 1 SWS): Asset liability management (Versicherungen) (Asset liability management (insurance))	5 ECTS
3	Lecturers	Prof. Gatzert und Mitarbeitende	

4	**Module coordinator**	Prof. Gatzert
5	**Contents**	- Darstellung von Konzepten zum Asset Management (grundsätzliche Überlegungen, Risikostreuung in der Praxis, rechtliche Rahmenbedingungen und strategische Aspekte der Kapitalanlagepolitik; Performancemessung) - Liability Management (Rückversicherungsformen, Alternativer Risikotransfer) - Asset Liability Management mit Fokus auf Versicherungen (Immunisierungsansätze (Cashflow und Duration Matching), Optimierungsstrategien, Szenarioanalysen und Dynamische Finanzanalyse)
6	**Learning objectives and skills**	- Die Studierenden erlernen, untersuchen und hinterfragen die grundlegenden und vertiefenden Konzepte des Asset sowie Liability Managements eines Versicherungsunternehmens - Hieraus folgern sie Methoden eines ganzheitlichen Asset-Liability-Managements
7	**Recommended prerequisites**	Keine
8	**Integration in curriculum**	WS: 2. Semester; SS: 1. Semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master FACT: Vertiefungsbereich (Modulgruppe Finance and Insurance) Master Sozialökonomik: freier Vertiefungsbereich Master Arbeitsmarkt und Personal: Wahlbereich Master Management: Vertiefungsbereich
10	**Method of examination**	60-minütige Klausur *Im Sommersemester besteht vorlesungsbegleitend die Möglichkeit einer freiwilligen Notenverbesserung, wobei eine Verbesserung um bis zu 0,3 Notenstufen erfolgen kann. Dazu können Studierende auf StudOn vier je 10-minütige Online-Kurztests (Quizze) zur Aufbereitung des Vorlesungsstoffs bearbeiten. Die Notenverbesserung erfolgt, wenn die Quizze erfolgreich bearbeitet wurden sowie die Klausur mit der Note 4,0 oder besser bestanden wurde. Etwaige Quizergebnisse aus dem Sommersemester werden für eine Prüfung im Wintersemester übernommen.*
11	**Grading procedure**	Klausur 100%
12	**Module frequency**	Jährlich im Sommersemester
13	**Workload**	Präsenzzeit: 45 h

		Eigenstudium: 105 h
14	**Module duration**	1 Semester
15	**Teaching and examination language**	Deutsch
16	**(Recommended) reading**	▪ Die vorbereitende Literatur und auch die weitergehende, forschungsbezogene Literatur werden im Rahmen der Veranstaltung bekannt gegeben.

Module group: Macroeconomics and Finance

1	**Module name** FACT-52560	**Banking supervision: Bank rating, stress testing, financial stability**	**5 ECTS**
2	Courses/lectures	L: Central banking (2 SWS)	5 ECTS
3	Lecturers	Dr. Thomas Kick	

4	**Module coordinator**	Prof. Merkl
5	**Contents**	This course covers a wide range of topics in banking supervision (e.g., bank rating models and risk assessment in banking supervision; different concepts of stress testing credit, market, and liquidity risk; development and analysis of bank stability indicators; bank resolution; financial stability and macroprudential oversight in the EU). Basic analytical concepts will be provided as a background; the last EBA/SSM Stress Test will be used to analyze the implications of such an exercise for banks, policy makers, and international organizations. A case study based on the econometrics software Stata will be used to develop empirical bank rating and stress testing tools.
6	**Learning objectives and skills**	Students -learn about banking structure, regulation, bank bailouts, and corporate governance in banking. - understand and apply different concepts of bank rating and stress testing; develop tools using the econometrics software Stata. - analyze competition and efficiency in banking markets and understand the concept of financial stability.
7	**Recommended prerequisites**	Macroeconomics (Bachelor)
8	**Integration in curriculum**	1. and 3. semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master FACT: Vertiefungsbereich (Modulgruppe Finance and Insurance)
10	**Method of examination**	Written examination (60 minutes)
11	**Grading procedure**	Written examination (100%) [The grade can be improved up to 0.7 units with a voluntary project work.]
12	**Module frequency**	Annually in the winter term
13	**Workload**	Presence: 30 h Independent study: 120 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Presentation slides and relevant literature will be provided.

Module group: Macroeconomics and Finance

1	**Module name** FACT-56270	**Financial engineering and structured finance**	**5 ECTS**
2	Courses/lectures	V + Ü: Financial engineering and structured finance (2 + 1 SWS)	5 ECTS
3	Lecturers	Prof. Scholz and assistants	

4	**Module coordinator**	Prof. Scholz
5	**Contents**	- Darstellung und Bewertung von Aktien-, Zinssatz- & Bondoptionen - Strukturierter Produkte im Fixed Income und Equity Bereich - Kapitalstruktur und Optionspreistheorie - Darstellung und Bewertung von Kreditderivaten
6	**Learning objectives and skills**	Die Studierenden - erarbeiten sich ein tiefgehendes Wissen über Aktien-, Zinssatz und Bondoptionen, können deren Einsatzmöglichkeiten beurteilen und ihren Wert bestimmen. - wenden zentrale Kenntnisse der Optionspreistheorie an, um Bestandteile komplexer, strukturierter Fixed Income- und Equity-Produkte zu analysieren, diese zu bewerten und deren Wertbeitrag für Kunden einer Bank zu evaluieren. - können unter Berücksichtigung von Kundenpräferenzen eigenständig innovative Finanzprodukte entwickeln. - sind in der Lage die Positionen Eigen- und Fremdkapital von Unternehmen auf Basis der Optionspreistheorie zu bewerten. - können Instrumente zum Kreditrisikotransfer erläutern und deren Einsatzmöglichkeiten kritisch hinterfragen.
7	**Recommended prerequisites**	Finanz- und Bankmanagement, Kapitalmarktorientierte Unternehmenssteuerung
8	**Integration in curriculum**	WS: 2. Semester SS: 1. Semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master FACT: Vertiefungs- und Ergänzungsbereich Master Management: Vertiefungsbereich Master Sozialökonomik: Vertiefungsbereich Master Arbeitsmarkt und Personal: Wahlbereich
10	**Method of examination**	60-minütige Klausur
11	**Grading procedure**	Klausur (100%)
12	**Module frequency**	Jährlich im Sommersemester
13	**Workload**	Präsenzzeit: 45 h Eigenstudium: 105 h
14	**Module duration**	1 Semester
15	**Teaching and examination language**	Deutsch
16	**(Recommended) reading**	Hull, John C.: Options, futures and other derivatives. Weitergehende, forschungsbezogene Literatur wird im Rahmen der Veranstaltung bekannt gegeben

Module group: Macroeconomics and Finance

1	**Module name** FACT-53770	**Finanz- und Bankmanagement** **(Financial and bank management)**	**5 ECTS**
2	Courses/lectures	V + Ü: Finanz- und Bankmanagement (2 + 1 SWS)	5 ECTS
3	Lecturers	Prof. Scholz and assistants	

4	**Module coordinator**	Prof. Scholz
5	**Contents**	- Klassische Ansätze zum Management von Marktzinsrisiken - Darstellung und Bewertung moderner Finanzinstrumente und Finanzprodukte (z.B. Optionen, Futures, Forwards und Swaps) - „Value at Risk“ zur Messung finanzieller Risiken - Aufbau und Funktion von Finanzsystemen - Steuerungssysteme für Finanzunternehmen
6	**Learning objectives and skills**	Die Studierenden - ermitteln Zinsrisiken von Anleiheportfolios und beurteilen Instrumente zur Reduktion von Zinsrisiken und deren Einsatz aus Kundensicht. - können diverse Fixed-Income Produkte wie Kupon-Anleihen, Floating Rates Notes und Zinsswaps bewerten und deren Chancen-Risiko-Profile beurteilen. - bestimmen die Kennzahl „Value at Risk“ für Portfolios und unter Anwendung verschiedene Konzepte der Volatilitätsschätzung. - können den generellen Aufbau und die Funktion des Banken- und Finanzsystems erläutern - beurteilen auf Basis der Marktzinsmethode die Geschäftspolitik einer Bank.
7	**Recommended prerequisites**	keine
8	**Integration in curriculum**	WS: 1. Semester SS: 2. Semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master FACT: Vertiefungs- und Ergänzungsbereich Master Management: Vertiefungsbereich Master Wirtschaftspädagogik, Studienrichtung I: fachwissenschaftlicher Pflichtbereich, sofern nicht im Wahlbereich in Block 3 belegt; Studienrichtung II: fachwissenschaftlicher Wahlbereich Master Sozialökonomik: Vertiefungsbereich Master Arbeitsmarkt und Personal: Wahlbereich
10	**Method of examination**	60-minütige Klausur
11	**Grading procedure**	Klausur (100%)
12	**Module frequency**	Jährlich im Wintersemester
13	**Workload**	Präsenzzeit: 45 h Eigenstudium: 105 h
14	**Module duration**	1 Semester
15	**Teaching and examination language**	Deutsch
16	**(Recommended) reading**	Hartmann-Wendels, T. / Pfingsten, A. / Weber, M.: Bankbetriebslehre, Berlin. Weitergehende, forschungsbezogene Literatur wird im Rahmen der Veranstaltung bekannt gegeben

Module group: Macroeconomics and Finance

1	**Module name** MSE-52290	**International finance**	**5 ECTS**
2	Courses/lectures	Lecture: International finance, theory and policy (2 SWS) Exercise: International finance, theory and policy (1 SWS)	5 ECTS
3	Lecturers	Prof. Merkl	

4	**Module coordinator**	Prof. Merkl
5	**Contents**	This course covers a wide range of topics (e.g., exchange rates and exchange rate regimes, national accounts and capital flows, international financial system, international banking and central banking). Basic economic concepts will be provided as a background. Statistics and empirical results will be shown to understand the validity of these concepts. Recent real life examples/case studies will be used to analyze the implications for policy makers, international organisations and business.
6	**Learning objectives and skills**	Students – understand and apply basic concepts of exchange rate determination and their validity. – learn about driving forces of capital flows. – analyze how international (central) banking and the international financial system work. – apply their knowledge in a presentation (either in case study style or in a small quantitative project).
7	**Recommended prerequisites**	Macroeconomics (Bachelor)
8	**Integration in curriculum**	3. semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master IBS: Core courses Master Master FACT: Vertiefungsbereich (Modulgruppe Finance and Insurance)
10	**Method of examination**	Written examination (60min) 80% Presentation 20% These three partial examinations are one uniform examination in which the individual partial examinations are inseparable. For the existence of the module, according to § 19 (1) sentences 2 and 4 of the MPOWiWi, as amended, all partial examinations must be passed in the same semester. Notwithstanding § 25 (1) sentences 2 and 3 of the MPOWIWI, it is not possible to repeat only one of the failed partial examinations because of the inseparable relation of the partial examinations to each other. Failure to receive one of the partial services requires the repetition of the entire examination
11	**Grading procedure**	Written examination + presentation (100%)
12	**Module frequency**	Annually in the winter term
13	**Workload**	Presence: 45 h Independent study: 105 h

14	**Module duration**	1 semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Presentation slides and relevant literature will be provided

Module group: Macroeconomics and Finance

1	**Module name** MSE-53344	**Labor markets: A macroeconomic perspective**	**5 ECTS**
2	Courses/lectures	S: Topics in macro-labor (2 SWS) L: Introduction to macro-labor theory and empirics (1 SWS)	4 ECTS 1 ECTS
3	Lecturers	Dr. Stüber	

4	**Module coordinator**	Prof. Merkl
5	**Contents**	- Stylized macroeconomic facts of the labor market - The labor market and business cycle dynamics - The importance of wage rigidities
6	**Learning objectives and skills**	Students learn - to analyze macroeconomic stylized facts of the labor market - to critically evaluate the ability of dynamic labor market models (e.g., search and matching) to replicate business cycle facts - to evaluate macroeconomic (policy) implications.
7	**Recommended prerequisites**	Macroeconomics: Business Cycles, Econometrics
8	**Integration in curriculum**	3. semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master Arbeitsmarkt und Personal: Wahlbereich Master Sozialökonomik: freier Vertiefungsbereich
10	**Method of examination**	Seminar paper (15 pages) and presentation of seminar paper (30 minutes)
11	**Grading procedure**	Seminar paper (90%), presentation (10%)
12	**Module frequency**	Annually in the winter term
13	**Workload**	Presence: 20 h Independent study: 130 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Pissarides, C. Equilibrium Unemployment. 2000, MIT Press, Cambridge. Chapters 1 & 9. Recent research articles

Module group: Macroeconomics and Finance

1	**Module name** FACT-56540	**Lebensversicherung** **(Life insurance)**	5 ECTS
2	Courses/lectures	V + Ü (2 + 1 SWS): Lebensversicherung (Life insurance)	5 ECTS
3	Lecturers	Prof. Gatzert und Mitarbeitende	

4	**Module coordinator**	Prof. Gatzert
5	**Contents**	- Einführung in den Lebensversicherungsmarkt - Darstellung von klassischen und innovativen Lebensversicherungsprodukten (und den darin enthaltenen impliziten Optionen) - Versicherungsmathematische Aspekte: Bestimmung von Prämien und Deckungsrückstellungen auf Basis der typischen aktuariellen Rechnungsgrundlagen (Zins, Sterbetafeln) - Analyse und Bewertung von Fondsprodukten mit Garantien - Absicherung von Garantien in Fondsprodukten mit Kapitalanlagestrategien (u.a. Constant Proportion Portfolio Insurance)
6	**Learning objectives and skills**	- Die Studierenden können aktuelle Entwicklungen im Lebensversicherungsmarkt beurteilen und hinterfragen diese - Die Studierenden berechnen Prämien und Deckungsrückstellungen von klassischen Lebensversicherungsverträgen - Des Weiteren bewerten sie klassische und fondsgebundene Lebensversicherungsprodukte mit verschiedenen Garantien und vergleichen verschiedene Methoden der Bewertung - Die Studierenden schätzen ein, wie verschiedene Arten von Finanzgarantien abgesichert werden müssen und wenden hierfür auch Kapitalanlagestrategien an
7	**Recommended prerequisites**	keine
8	**Integration in curriculum**	WS: 2. Semester; SS: 1. Semester
9	**Module compatibility**	Master FACT: Vertiefungsbereich (Modulgruppe Finance & Insurance) Master Management: Vertiefungsbereich Master Sozialökonomik: freier Vertiefungsbereich Master Arbeitsmarkt und Personal: Wahlbereich Master Economics: Elective compulsory subjects
10	**Method of examination**	60-minütige Klausur *Im Sommersemester besteht vorlesungsbegleitend die Möglichkeit einer freiwilligen Notenverbesserung, wobei eine Verbesserung um bis zu 0,3 Notenstufen erfolgen kann. Dazu können Studierende auf StudOn vier je 10-minütige Online-Kurztests (Quizze) zur Aufbereitung des Vorlesungsstoffs bearbeiten. Die Notenverbesserung erfolgt, wenn die Quizze erfolgreich bearbeitet wurden sowie die Klausur mit der Note 4,0 oder besser bestanden wurde. Etwaige Quizergebnisse aus dem Sommersemester werden für eine Prüfung im Wintersemester übernommen.*

11	**Grading procedure**	Klausur 100%
12	**Module frequency**	jährlich im Sommersemester
13	**Workload**	Präsenzzeit: 45 h Eigenstudium: 105 h
14	**Module duration**	1 Semester
15	**Teaching and examination language**	Deutsch
16	**(Recommended) reading**	Die vorbereitende Literatur und auch die weitergehende, forschungsbezogene Literatur werden im Rahmen der Veranstaltung bekannt gegeben.

Module group: Macroeconomics and Finance

1	**Module name** **MSE-53313**	**Multivariate time series analysis**	**5 ECTS**
2	**Courses/lectures**	L: Multivariate time series analysis (2SWS) E: Multivariate time series analysis (2SWS)	**2.5 ECTS** **2.5 ECTS**
3	**Lecturers**	Dr. Monika Doll	

4	**Module coordinator**	Prof. Dr. Jonas Dovern
5	**Contents**	Brief repetition of concepts of univariate time series analysis; stationary vector autoregressive (VAR) processes: basics, estimation, lag order selection, specification testing, forecasting; structural VAR models: various methods for identifying macroeconomic shocks; non-stationary/integrated processes: spurious correlation vs. cointegration, error correction models; multivariate GARCH models.
6	**Learning objectives and skills**	Ability to independently analyze multivariate stationary time series using vector autoregressive processes; ability to explain the problems of identifying structural macroeconomic shocks and ability to estimate and interpret SVAR models; ability to test for spurious correlations between integrated time series and ability to specify and estimate models for cointegrated time series; ability to explain and estimate basic multivariate GARCH models; skills for using existing functions in R for time series analysis and for developing proprietary functions for analyzing multivariate time series in R.
7	**Recommended prerequisites**	Proficiency in univariate time series analysis and basic concepts of econometrics
8	**Integration in curriculum**	2. or 4. semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master FACT: Vertiefungs- und Ergänzungsbereich Master Arbeitsmarkt und Personal: Wahlpflichtbereich Master in Marketing (start before WS17/18): Wahlpflichtbereich Modulgruppe “Methoden” Master in Marketing (start since WS17/18): Wahlpflichtbereich Modulgruppe “Data Science” Master in Sozialökonomik: freier Vertiefungsbereich
10	**Method of examination**	Written examination (60 minutes)
11	**Grading procedure**	Written examination (100%) Good results for online quizzes during the semester can improve the grade by 0,3/0,4 points.
12	**Module frequency**	Annually in the summer term
13	**Workload**	Presence: 60h Independent study: 90h
14	**Module duration**	1 semester
15	**Teaching and examination language**	English

16	**(Recommended) reading**	Lütkepohl, H. (2005), *New Introduction to Multiple Time Series Analysis*, Springer. *Kilian*, L. and H. Lütkepohl (2017), *Structural Vector Autoregressive Analysis (Themes in Modern Econometrics)*, Cambridge University Press, Cambridge. Tsay, R.S. (2005), *Analysis of Financial Time Series*, 2nd edition, Wiley. (alternatively 3rd edition from 2010). Verbeek, M. (2008), *A Guide to Modern Econometrics*,, 3rd edition, Wiley.

Module group: Macroeconomics and Finance

1	**Modulbezeichnung** FACT- 56470	**Versicherungs- und Risikotheorie** (Risk and insurance theory)	5 ECTS
2	Lehrveranstaltungen	V + Ü (2 + 1 SWS): Versicherungs- und Risikotheorie (Risk and insurance theory)	5 ECTS
3	Lehrende	Prof. Gatzert und Mitarbeitende	

4	**Modulverantwortliche/r**	Prof. Gatzert
5	**Inhalt**	Entscheidung bei Sicherheit, Unsicherheit, Risiko; Risikomessung, Risikowahrnehmung, Risikobeeinflussung (Vorgehen und Methoden); Risikobewertung am Beispiel der Versicherungsnachfrage und des Versicherungsangebots (individuell und aus Unternehmenssicht); Problematik der Informationsasymmetrien (Adverse Selektion, Moral Hazard); Enterprise Risk Management
6	**Lernziele und Kompetenzen**	- Die Studierenden können Kenntnisse über die zentralen Konzepte der Risikobewertung und der Risikotheorie beurteilen und hinterfragen - Die Studierenden können die moderne Methodik der ökonomischen Theorie von Erstversicherungsentscheidungen erschließen und diese auf relevante Fragestellungen anwenden - Die Studierenden erlernen den Umgang mit Risiken, die Bewertung von Unternehmen sowie die internationale Kapitalbeschaffung
7	**Empfohlene Voraussetzungen für die Teilnahme**	keine
8	**Einpassung in Musterstudienplan**	WS: 1. Semester; SS: 2. Semester
9	**Verwendbarkeit des Moduls**	Master FACT: Pflichtbereich Master Management: Vertiefungsbereich Master Wirtschaftspädagogik, Studienrichtung I: fachwissenschaftlicher Wahlbereich Master Arbeitsmarkt und Personal: Wahlbereich Master Economics: Elective compulsory subjects Master Sozialökonomik: freier Vertiefungsbereich
10	**Studien- und Prüfungsleistungen**	60-minütige Klausur *Im Wintersemester besteht vorlesungsbegleitend die Möglichkeit einer freiwilligen Notenverbesserung, wobei eine Verbesserung um bis zu 0,3 Notenstufen erfolgen kann. Dazu können Studierende auf StudOn vier je 10-minütige Online-Kurztests (Quizze) zur Aufbereitung des Vorlesungsstoffs bearbeiten. Die Notenverbesserung erfolgt, wenn die Quizze erfolgreich bearbeitet wurden sowie die Klausur mit der Note 4,0 oder besser bestanden wurde. Etwaige Quizergebnisse aus dem Wintersemester werden für eine Prüfung im Sommersemester übernommen.*
11	**Berechnung Modulnote**	Klausur (100%)

12	**Turnus des Angebots**	jährlich im WS
13	**Arbeitsaufwand**	Präsenzzeit: 45 h Eigenstudium: 105 h
14	**Dauer des Moduls**	1.Semester
15	**Unterrichts- und Prüfungssprache**	Deutsch
16	**(Vorbereitende) Literatur**	Die vorbereitende und weitergehende, forschungsbezogene Literatur wird im Rahmen der Veranstaltung bekannt gegeben.

Module group: Macroeconomics and Finance

1	**Module name** MIBS-57130	**International trade and labor**	**5 ECTS**
2	Courses/lectures	V: International trade and labor (2 SWS) Ü: International trade and labor (2 SWS)	2,5 ECTS 2,5 ECTS
3	Lecturers	Prof. Christoph Moser and staff	

4	**Module coordinator**	Prof. Christoph Moser
5	**Contents**	This module deals with the consequences of globalization for the domestic labor market and discusses the winners and losers of trade liberalization. The module focuses on the impact of international economic integration on domestic wages, jobs and inequality, in particular in Germany and the United States.
6	**Learning objectives and skills**	Students are made familiar with the main relevant concepts of international trade and aquire specialized knowledge of the labor market effects of trade liberalization. Students learn about key theoretical predictions, their empirical evidence and the empirical strategies to assess their relevance. The module focuses on topics at the intersection between international trade and labor.
7	**Recommended prerequisites**	Basic knowledge of microeconomics and econometrics. (e.g., Varian, Hal (2014), Intermediate Microeconomics: A Modern Approach, 9th international edition) and econometrics (e.g., Wooldridge, Jeffrey (2013), Introductory Econometrics: A Modern Approach, 5th international edition).
8	**Integration in curriculum**	Semester 2 or 4
9	**Module compatibility**	Master Economics: elective course (Wahlbereich) Master IBS: elective course (Wahlbereich) Master Arbeitsmarkt und Personal: Wahlbereich Master Sozialökonomik: freier Vertiefungsbereich
10	**Method of examination**	Written examination 60 min. (Klausur 60 Min.)
11	**Grading procedure**	Written examination result 100% (Prüfungsergebnis 100%)
12	**Module frequency**	Summer term (SS)
13	**Workload**	Attendance: 60h Self-study: 90h
14	**Module duration**	1 semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Krugman, P., M. Obstfeld and M. Melitz (2017/18), “International Trade: Theory and Policy” OR “International Economics: Theory and Policy,” 11th global edition.

Module group: Macroeconomics and Finance

1	**Module name** MARK 57340	**Bayesian Econometrics**	**5 ECTS**
2	Courses/lectures	Lecture: Bayesian Econometrics (2 SWS) Practice session: Bayesian Econometrics (2 SWS)	2,5 ECTS 2,5 ECTS
3	Lecturers	Dr. Alexander Glas	
4	**Module coordinator**	Prof. Dr. Jonas Dovern	
5	**Contents**	Basics of Bayesian statistics; Bayesian estimation of linear regression models with various priors; Bayesian estimation of models for limited dependent variables; Bayesian VAR models; forecasting with Bayesian models; Bayesian estimation of macroeconomic DSGE models; posterior simulation techniques (Monte Carlo integration, importance sampling, Gibbs sampler, Metropolis-Hastings algorithm); implementation of methods in R	
6	**Learning objectives and skills**	Ability to explain the differences between Bayesian and frequentist econometrics; ability to derive posterior parameter distributions for different priors for a range of empirical models; ability to investigate how sensitive results are with respect to prior choices; ability to interpret results of Bayesian analyses in academic research papers; skills to implement Bayesian estimations of the covered models in R	
7	**Recommended prerequisites**	Basic knowledge in statistics Courses: “Applied econometrics” and “Mathematics for economists”	
8	**Integration in curriculum**	2. or 4. semester	
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master FACT: Vertiefungs- und Ergänzungsbereich Master Arbeitsmarkt und Personal: Wahlbereich Master Marketing für Studierende mit Studienbeginn ab 17/18: Wahlpflichtbereich der Modulgruppe „Data Science“ Master Marketing für Studierende mit Studienbeginn vor 17/18: Wahlpflichtbereich der Modulgruppe „Methoden“ Master Sozialökonomik: Freier Vertiefungsbereich	
10	**Method of examination**	Oral examination (20 minutes)	
11	**Grading procedure**	Oral examination (100 %)	
12	**Module frequency**	Annually in the summer term	
13	**Workload**	Attendance: 60h Independent study: 90h	
14	**Module duration**	1 semester	
15	**Teaching and examination language**	English	
16	**(Recommended) reading**	**Koop, G. (2003), Bayesian Econometrics, Wiley, West Sussex.** Del Negro, M. and F. Schorfheide (2011), Bayesian Macroeconomics, in: Geweke, J., G. Koop, and H. van Dijk (eds.), The Oxford Handbook of Bayesian Econometrics, p.293–389, Oxford University Press, Oxford. Kilian, L. and H. Lütkepohl (2017), Structural Vector Autoregressive Analysis, Cambrige University Press, Cambridge.	

Module group: Macroeconomics and Finance

1	**Module Name** MSE-57400	**European topics in economics**	**5 ECTS**
2	Courses/Lectures	S: European topics in economics	5 ECTS
3	Lecturers	Prof. Merkl and Assistants	

4	**Module coordinator**	Prof. Merkl
5	**Contents**	- European topics in economics
6	**Learning objectives and skills**	Students - use a microeconomic or macroeconomic dataset. - apply advanced econometric techniques to answer economic questions related to the European Union. - write a seminar work that describes key empirical results. - present their results in Brussels.
7	**Recommended prerequisites**	„Macroeconomics: Business Cycles“ and „Applied Econometrics“
8	**Integration in curriculum**	2. or 4. Semester
9	**Module compatability**	Master in Economics –Specialization Macroeconomics and Finance
10	**Method of examination**	Written seminar work (15 pages) and presentation (15 minutes)
11	**Grading procedure**	S: 100%
12	**Module frequency**	Module will be offered once during the summer term 2020.
13	**Workload**	Presence time: 45 h Own work: 105 h
14	**Module duration**	1 Semester
15	**Teaching and examination procedure**	English
16	**(Recommended) reading**	.

Module group: Macroeconomics and Finance

17	**Module Name** MSE-52392	**Macroeconomic stabilization in severe economic crises**	**5 ECTS**
18	Courses/Lectures	S: Macroeconomic stabilization in severe economic crises	5 ECTS
19	Lecturers	Prof. Merkl and Assistants	

20	**Module coordinator**	Prof. Merkl
21	**Contents**	- Macroeconomic Stabilization under Severe Economic Crisis
22	**Learning objectives and skills**	Students - use a microeconomic or macroeconomic dataset. - solve and simulate dynamic macroeconomic models - apply advanced econometric techniques to answer economic questions. - write a seminar work that describes key empirical and/or simulated results.
23	**Recommended prerequisites**	„Macroeconomics: Business Cycles“ and „Applied Econometrics“
24	**Integration in curriculum**	2. or 4. Semester
25	**Module compatability**	Master in Economics – Specialization Macroeconomics and Finance
26	**Method of examination**	seminar paper (15 pages) and presentation (15 minutes)
27	**Grading procedure**	S: 100%
28	**Module frequency**	**Module will be offered once during the summer term 2021.**
29	**Workload**	Presence time: 45 h Own work: 105 h
30	**Module duration**	1 Semester
31	**Teaching and examination procedure**	English
32	**(Recommended) reading**	.

Module group: Public Economics

1	**Module name** MSE-54611	**Public economics**	**5 ECTS**
2	Courses/lectures	L: Public Economics (2 hours) T: Public Economics(2 hours)	2,5 ECTS 2,5 ECTS
3	Lecturers	Prof. Büttner, Dr. Boryana Madzharova and assistants	

4	**Module coordinator**	Prof. Büttner
5	**Contents**	The lecture provides an introduction in public economics at the intermediate level. The course first derives the basic theoretical foundations for an optimal design of public policy. In the second step, the course discusses specific aspects of public policy, such as taxation and redistribution, social security, tax evasion, debt finance, interjurisdictional competition and fiscal federalism. It supplements theory by exploring practical problems.
6	**Learning objectives and skills**	Students know how to characterize efficient public policies using microeconomic decision models. They can use this framework to study public policy in a rigorous and consistent general equilibrium context. Students are acquainted with important empirical approaches to evaluate public policies quantitatively. Moreover, they acquire knowledge about options, methods and limits to implement efficient public policy
7	**Recommended prerequisites**	Basic microeconomics
8	**Integration in curriculum**	2nd Semester in MSE, FACT, 2nd Semester in Wing
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master Wirtschaftsingenieurwesen: Wahlbereich Master FACT: Vertiefungs- und Ergänzungsbereich Master Arbeitsmarkt und Personal: Wahlbereich
10	**Method of examination**	Written exam (90 minutes)
11	**Grading procedure**	Written exam (100%)
12	**Module frequency**	Summer semester
13	**Workload**	Attendance: 60 h Independent Study: 90 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Hindriks, J., and Myles, G., (2006), Intermediate Public Economics, MIT Press, Cambridge Atkinson, A.B., Stiglitz, J. E., (1980), Lectures on Public Economics . MacGraw-Hill, New York Lecture notes are provided at the beginning of the course

Module group: Public Economics

1	**Module name** MSE-53281	**Behavioral economics**	**5 ECTS**
2	Courses/lectures	Lecture: Behavioral economics (2 SWS) Exercise: Behavioral economics (1 SWS)	2,5 ECTS 2,5 ECTS
3	Lecturers	Prof. Grimm and assistants	

4	**Module coordinator**	Prof. Grimm
5	**Contents**	The course provides a theoretical and empirical introduction into the area of “Behavioral Economics”. This relatively new area of economics research wants to identify important deviations from the predictions of classical economics models and to extend existing models to account for these findings.
6	**Learning objectives and skills**	In the course the method of experimental economics is introduced and its use for behavioral oriented research is learned. Students learn the skill of using empirical and experimental studies as complements to theory in the study of strategic interactions.
7	**Recommended prerequisites**	Completed Bachelor degree in Economics or in a related discipline, Microeconomics I and II
8	**Integration in curriculum**	2. semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master Sozialökonomik: sozialökonomischer Vertiefungsbereich oder freier Vertiefungsbereich Master Arbeitsmarkt und Personal: Wahlbereich Master Marketing mit Studienbeginn ab WS17/18: Wahlmodul in der Modulgruppe „Interdisziplinäre Module“ Master Marketing mit Studienbeginn vor WS17/18: Wahlmodul in der Modulgruppe „Sonstiges“
10	**Method of examination**	Written examination (90 min.)
11	**Grading procedure**	Written examination (100%)
12	**Module frequency**	Annually in the summer term
13	**Workload**	Presence: 45 h Independent study: 105 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Camerer, Colin F. (2003), Behavioral Game Theory: Experiments on Strategic Interaction, Princeton Univ. Press. Journale articles, announcement on chair website

Module group: Public Economics

1	**Module name** MSE-56441	**Economic internship**	**5 ECTS**
2	Courses/lectures	P: External economic internship	5 ECTS
3	Lecturers	Prof. Büttner / Prof. Grimm / Prof. Merkl / Prof. Riphahn / Prof. Tauchmann	

4	**Module coordinator**	Prof. Büttner / Prof. Grimm / Prof. Merkl / Prof. Riphahn / Prof. Tauchmann
5	**Contents**	Economic internship with research institutes, international organizations, research departments of firms in relation to the Master specialisation (Public, Labor, Macro & Finance, Health, or Energy)
6	**Learning objectives and skills**	Students obtain the chance to familiarize themselves with labor market opportunities for economists and learn how to apply economic concepts and methods in practice. Students also expand their command of important soft skills, including presentation techniques and communication skills. The participants exchange their practical experiences and insights and develop a critical reflection on economic practice and job market opportunities.
7	**Recommended prerequisites**	Students should have completed all courses of the first semester.
8	**Integration in curriculum**	Internship typically during the summer break. Presentation during the following semester. Please take notice of the application deadlines (communicated by the lecturer responsible for the respective specialisation)
9	**Module compatibility**	Master Economics: Elective compulsory subjects (Module does not belong to any specialisation)
10	**Method of examination**	Completed internship; written self-report; presentation of self-report
11	**Grading procedure**	No grades (passed/failed)
12	**Module frequency**	Internship typically during the summer break. Presentation during the following semester. Please take notice of the application deadlines (communicated by the responsible lecturers for the respective specialisation)
13	**Workload**	300 h (= 6 weeks internship (full time), self-report, presentation)
14	**Module duration**	1 Semester
15	**Teaching and examination language**	German and English
16	**(Recommended) reading**	Please note: The number of internships is limited. Interested students have to apply at the external institution with recommendation by the lecturer responsible for the respective specialisation. Students can in principle also be credited for other internships provided they are sufficiently associated with economic research and fit into one of the areas. An upfront written agreement with the respective lecturer is required.

Module group: Public Economics

1	**Modulbezeichnung** A&P- 53082	**Ökonomie der Sozialpolitik** (Economics of Social Policy)	**5 ECTS**
2	Lehrveranstaltungen	S: Ökonomie der Sozialpolitik (3 SWS) *(Anwesenheitspflicht)*	5 ECTS
3	Lehrende	Prof. Wrede und Mitarbeiter/in	

4	**Modulverantwortliche/r**	Prof. Wrede
5	**Inhalt**	Ausgewählte ökonomische Analysen der Sozialpolitik unter Einschluss ethischer und ökonomischer Grundlagen sowie institutioneller Aspekte
6	**Lernziele und Kompetenzen**	- Studierende kennen ausgewählte Bereiche der Sozialpolitik und können diese beschreiben und international vergleichen. - Studierende können ethische und ökonomische Grundlagen staatlicher Eingriffe in ausgewählten Bereichen sozialer Sicherung darstellen, interpretieren und diskutieren. - Studierende können Wirkungen sozialpolitisch relevanter Größen theoretisch und empirisch verstehen, bewerten und hinterfragen. - Studierende können sozialpolitische Maßnahmen unter Effizienz- und Gerechtigkeitsgesichtspunkten bewerten und hinterfragen. - Studierende geben Ihren Kommilitonen im Rahmen ihrer Präsentationen strukturiertes Feedback. - Studierende fördern die Fachkenntnisse der anderen Studierenden durch themenspezifische Diskussionsbeiträge. - Studierende erfassen, bewerten und diskutieren ausgewählte aktuelle, meist englischsprachige Forschungsarbeiten in Ihrer Seminararbeit.
7	**Empfohlene Voraussetzungen für die Teilnahme**	Mikroökonomische und ökonometrische Kenntnisse
8	**Einpassung in Musterstudienplan**	2. Semester
9	**Verwendbarkeit des Moduls**	Master Arbeitsmarkt und Personal: Wahlpflichtbereich Master Gesundheitsmanagement und Gesundheitsökonomie: Wahlbereich Master Economics: Wahlbereich Master Wirtschaftspädagogik, Studienrichtung I: fachwissenschaftlicher Wahlbereich; Studienrichtung II: Wahlbereich im Zweitfach Sozialkunde Master Sozialökonomik: sozialökonomischer Vertiefungsbereich oder freier Vertiefungsbereich
10	**Studien- und Prüfungsleistungen**	Modulprüfung bestehend aus Hausarbeit (15 S.), Präsentation (20 Min.), Diskussionsbeitrag Es handelt sich um eine zusammenhängende Prüfung, deren Teile untrennbar verbunden sind und nicht einzeln wiederholt werden können. Die Prüfung muss in einem Semester vollständig bestanden werden (im Sinne von § 19 Abs. 1 Satz 4 MPOWiSo). Bei Nichtbestehen eines einzelnen Teils ist die gesamte Prüfung zu wiederholen (abweichend von § 25 Abs. 1 Satz 2 MPOWiSo).
11	**Berechnung Modulnote**	Hausarbeit 60%, Präsentation 30%, Diskussionsbeitrag 10%

12	**Turnus des Angebots**	Jährlich im Sommersemester
13	**Arbeitsaufwand**	Präsenzzeit: 45 h Selbststudium: 105 h
14	**Dauer des Moduls**	1 Semester
15	**Unterrichts- und Prüfungssprache**	Deutsch

Module group: Public Economics

1	**Module name** MSE-52930	**Seminar behavioral economics 1**	**5 ECTS**
2	Courses/lectures	S: Seminar behavioral economics 1 (3 SWS) (Compulsory attendance)	5 ECTS
3	Lecturers	Prof. Grimm, Prof Utikal, and assistants	

4	**Module coordinator**	Prof. Grimm and Prof. Utikal
5	**Contents**	The seminar sheds light on various issues in “market and institution design” focusing on selected applications. Market and institution design applies methods of game theory and (behavioral) economics to develop effective market rules. In this seminar, the focus will lie on market rules of various markets such as labor-markets or markets in the sector of health or public economics. In different market environments, phenomena like trust, social preferences, or bounded rationality are important. Understanding these aspects is of key importance for specifying the details of a particular market environment. In the seminar, we will analyse the peculiarities of selected markets and their implications for the effective organization of those markets from a theoretical and/or behavioural perspective.
6	**Learning objectives and skills**	Students - Analyze the peculiarities of markets and their operating mode within the frame of complex theoretic and behavioral models, - Discuss the validity of those models based on experimental or empirical studies, - Evaluate, based on the literature, different market and institution designs, - Autonomously analyze complex questions and develop solution concepts - Are able to write a relevant theoretic or empirical scientific essay, - Develop their presentation skills.
7	**Recommended prerequisites**	Solid knowledge of microeconomics
8	**Integration in curriculum**	2. or 3. semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master Marketing für Studierende mit Studienbeginn ab WS17/18: Wahpflichtbereich der Modulgruppe „Statistik“
10	**Method of examination**	Developing and writing a seminar paper (50%), presentation of the paper (30%), class participation: discussion of a fellow student’s paper (20%)
11	**Grading procedure**	50% written seminar paper, 30% presentation, 20% class participation
12	**Module frequency**	Each term
13	**Workload**	Presence: 45h Independent study: 105h
14	**Module duration**	1 semester

15	**Teaching and examination language**	English
16	**(Recommended) reading**	Changing recent scientific literature

Module group: Public Economics

1	**Module name** MSE-52940	**Seminar behavioral economics 2**	**5 ECTS**
2	Courses/lectures	S: Seminar behavioral economics 2 (3 SWS) (Compulsory attendance)	5 ECTS
3	Lecturers	Prof. Grimm, Prof. Utikal, and assistants	

4	**Module coordinator**	Prof. Grimm and Prof. Utikal
5	**Contents**	The seminar deals with theories and methods from behavioural and experimental economics. Although behavioral and experimental economics are relatively recent fields of research, many insights have been gained from applying the methods of the field to key economic questions. Relevant topics include, but are not limited to, nudging (in the sector of health, labor, public and energy economics), norm compliance (mainly public and labor economics), social preferences (mainly health and labor economics) or uncertainty preferences (energy economics). Depending on the topic of the seminar, questions of experimental design, conducting studies and analysis of behavioural data can be dealt with.
6	**Learning objectives and skills**	Students - Gain fundamental understanding of the methods of behavioral and experimental economics, - Learn to autonomously apply those methods, - Conceptualize own research ideas, - Analyze the peculiarities of complex economic situations, - Develop their presentation skills.
7	**Recommended prerequisites**	Solid knowledge of microeconomics
8	**Integration in curriculum**	2. or 3. semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master Marketing für Studierende mit Studienbeginn ab WS17/18: Wahpflichtbereich der Modulgruppe „Statistik“
10	**Method of examination**	Developing and writing a seminar paper (50%), presentation of the paper (30%), class participation: discussion of a fellow student’s paper (20%)
11	**Grading procedure**	50% written seminar paper, 30% presentation, 20% class participation
12	**Module frequency**	Annually in the winter term
13	**Workload**	Presence: 45h Independent study: 105h
14	**Module duration**	1 semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Camerer, Löwenstein and Rabin (2003), *Advances in Behavioral Economics*, Princeton University Press. Changing recent scientific literature

Module group: Public Economics

1	**Module name** MSE-52950	**Seminar public economics 1**	**5 ECTS**
2	Courses/lectures	Seminar public economics 1 (3 SWS)	5 ECTS
3	Lecturers	Prof. Dr. Büttner, Prof. Dr. Wrede	

4	**Module coordinator**	Prof. Dr. Büttner, Prof. Dr. Wrede
5	**Contents**	Topics in Public Economics
6	**Learning objectives and skills**	Students - study selected parts of the academic literature in public economics (mostly from scientific journals) and learn how to deal with this literature - learn how to identify relevant contributions in large bodies of economic literature - learn what up-to-date methods (theory and empirics) in public economics are - learn how to read economic papers and to evaluate and assess contributions, both in terms of theory and empirical methods - learn how to delineate conclusions from the academic literature in terms of policy implications and recommendations - learn how to structure and write academic theses in economics - expand their skills in terms of presentation techniques and participation in academic discussion
7	**Recommended prerequisites**	All techniques and methods that are part of the curriculum in the first semester
8	**Integration in curriculum**	2. semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master Sozialökonomik: sozialökonomischer Vertiefungsbereich
10	**Method of examination**	Seminar paper (15 pages), presentation, class participation: Discussion of other participants' presentations *This is a complete examination which means that the partial achievements cannot be separated. Pursuant to Section 19 (1) (4) MPOWIWI, all partial achievements must be completed in the same semester to pass the module. As the partial achievements are connected, repeating only one partial achievement is not permitted in deviation to Section 25 (1)(2) MPOWIWI. Failing one partial achievement requires the entire examination to be repeated*.
11	**Grading procedure**	Seminar paper 50%, Presentation 30%, class participation 20%
12	**Module frequency**	Annually in the summer term
13	**Workload**	Seminar attendance: 45 h Independent study: 105 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	English

16	**(Recommended) reading**	Will be provided

Module group: Public Economics

1	**Module name** MSE-52960	**Seminar public economics 2**	**5 ECTS**
1.	Courses/lectures	Seminar public economics 2 (3 SWS)	5 ECTS
2	Lecturers	Prof. Büttner, Prof. Rincke, Prof. Wrede	

3	**Module coordinator**	Prof. Büttner, Prof. Rincke, Prof. Wrede
4	**Contents**	Topics in Public Economics
5	**Learning objectives and skills**	Students - study selected parts of the academic literature in public economics (mostly from scientific journals) and learn how to deal with this literature - learn how to identify relevant contributions in large bodies of economic literature - learn what up-to-date methods (theory and empirics) in public economics are - learn how to read economic papers and to evaluate and assess contributions, both in terms of theory and empirical methods - learn how to delineate conclusions from the academic literature in terms of policy implications and recommendations - learn how to structure and write academic theses in economics - expand their skills in terms of presentation techniques and participation in academic discussion
6	**Recommended prerequisites**	All techniques and methods that are part of the curriculum in the first semester
7	**Integration in curriculum**	3. semester
8	**Module compatibility**	Master Economics: Elective compulsory subjects
9	**Method of examination**	Seminar paper (15 pages), Presentation, class participation: Discussion of other participants' presentations This is a complete examination which means that the partial achievements cannot be separated. Pursuant to Section 19 (1) (4) MPOWIWI, all partial achievements must be completed in the same semester to pass the module. As the partial achievements are connected, repeating only one partial achievement is not permitted in deviation to Section 25 (1)(2) MPOWIWI. Failing one partial achievement requires the entire examination to be repeated.
10	**Grading procedure**	Seminar paper 50%, Presentation 30%, class participation 20%
11	**Module frequency**	Annually in the winter term
12	**Workload**	Seminar attendance: 45 h Independent study: 105 h
13	**Module duration**	1 semester
14	**Teaching and examination language**	English
15	**(Recommended) reading**	Will be provided

Module group: Public Economics

1	**Module name** MSE-55960	**Spatial economics**	**5 ECTS**
2	Courses/lectures	L: Spatial economics (2 SWS) E: Spatial economics (2 SWS)	5 ECTS
3	Lecturers	Prof. Wrede and assistants	

4	**Module coordinator**	Prof. Wrede
5	**Contents**	Urban Economics, Trade, Mobility, and Agglomeration, Spatial Concentration, Regional Policy
6	**Learning objectives and skills**	At the end of this course, - Students are able to describe and to internationally compare the regional patterns of major economic activities in terms of stylized facts. - Students are able to present, interpret, and discuss selected theories in regional and urban economics. - Students are able to apply and assess selected empirical methods in spatial economics. - Students are able to assess empirical tests of selected hypotheses from theories in regional and urban economics to evaluate and critically examine their informative value. - Students are able to discuss and evaluate regional political implications of selected economic theories in regional and urban economics. - Students will assess, evaluate and discuss selected recent research papers in English.
7	**Recommended prerequisites**	Microeconomics, Econometrics I
8	**Integration in curriculum**	2nd Semester or later
9	**Module compatibility**	Master Economics: Elective compulsory subjects
10	**Method of examination**	L&T: written examination (60 min.) and presentation during the lecture (in groups, 10 min.); students need to pass the written examination
11	**Grading procedure**	Written examination 80%, presentation 20%
12	**Module frequency**	Annually (summer semester); registration at the end of the winter term
13	**Workload**	Presence: 60 h Independent study: 90 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Brakman, S., H. Garretsen und C. van Marrewijk (2020). An Introduction to Geographical and Urban Economics. Cambridge University Press. Cambridge, UK, 3. Ed.

Module group: Public Economics

Module group: Public Economics

1	**Module name** MSE-57330	**Development economics**	**5 ECTS**
2	Courses/lectures	Lecture: Development economics (2 SWS) Exercise: Development economics (2 SWS)	2,5 ECTS 2,5 ECTS
3	Lecturers	Prof. Rincke and Assistants	

4	**Module coordinator**	Prof. Rincke
5	**Contents**	The lecture covers the principles of modern development economics and, using various examples from the current literature, highlights the core topics, the methodological challenges, and the key findings derived in this sub-discipline of economics. The lecture covers decisions of individuals and households and thus has a clear microeconomic focus. A core topic of the lecture is why poor individuals and households are often struggling to leave poverty and to advance to more adequate living conditions, and which policies can help to overcome poverty traps. In the exercise course, the focus is on advanced empirical methods and their application to problems of development. Students work with data sets and replicate core findings from the literature.
6	**Learning objectives and skills**	The module aims at providing students with a comprehensive set of advanced conceptual and methodological tools to analyse problems in development economics. Specifically, students - get an overview of modern development economics and the history of thought in this sub-discipline - learn how to analyse specific problems in development economics, based on the current journal literature - deal intensively with applied methods in modern development economics, in particular with experimental methods and advanced methods of data analysis - learn to understand, evaluate and replicate empirical studies in development economics - advance their ability to perform independent data analyses using complex data sets from the academic literature
7	**Recommended prerequisites**	Completion of all compulsory courses in the MSE program, in particular Microeconomics, Applied Econometrics, and Mathematics for Economists
8	**Integration in curriculum**	3. Semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master Sozialökonomik: Vertiefungsbereich Master Arbeitsmarkt und Personal: Wahlbereich
10	**Method of examination**	- Written exam (60 min) - Presentation (30 min)
11	**Grading procedure**	Written exam: 50%, presentation 50%
12	**Module frequency**	Each year (winter term)
13	**Workload**	Lecture and exercise attendance: 45 h

		Individual studies: 105 h
14	**Module duration**	1 Semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Selection of journal articles, provided on StudOn

Module group: Public Economics

1	**Module name** MSE-53295	**Economics of innovation**	**ECTS** **5**
2	Courses/lectures	L: Economics of Innovation (2 SWS) T Economics of Innovation (2 SWS	ECTS 5
3	Lecturers	Prof. Dr. Markus Nagler	

4	**Module coordinator**	Prof. Dr. Markus Nagler
5	**Contents**	The lecture provides an introduction to economic issues of innovation and new ideas. The course first sets out general problems in the economics of innovation such as the public goods nature of ideas and the importance of innovation for economic prosperity. In the second part, the course analyses issues in intellectual property rights and public economics topics such as public funding of research or the role of universities. In the last part, the course discusses labor and personnel issues in innovation policy, for example the impact of immigration on innovation.
6	**Learning objectives and skills**	Students know the key issues in the economics of innovation and the impacts of potential public policies to promote innovation. They are able to assess current research in the economics of innovation and are able to relate its results to fundamental policy questions in the area. Students are acquainted with important empirical approaches in the area.
7	**Recommended prerequisites**	Basic microeconomics, basic econometrics
8	**Integration in curriculum**	2nd semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master Sozialökonomik: elective course (freier Vertiefungsbereich) Master in Management: elective course (Vertiefungsbereich) Master International Business Studies: elective course Master Arbeitsmarkt und Personal: freier Vertiefungsbereich
10	**Method of examination**	Written exam (90 minutes) *If original examination cannot be held due to Corona:* *oral examination*
11	**Grading procedure**	Written exam (100%) *If original examination cannot be held due to Corona:* *oral examination (100%)*
12	**Module frequency**	Summer term
13	**Workload**	Presence: 60 h Independent study: 90 h Lecture notes are provided throughout the course (usually around one week in advance).
14	**Module duration**	1 semester
15	**Teaching and examination language**	English

16	**(Recommended) reading**	Bryan, Kevin and Heidi Williams (forthcoming): “Markets for innovation: Market failures and public policies”, Handbook of Industrial Organization Bloom, Nicholas, John Van Reenen and Heidi Williams (2019): “A Toolkit of Policies to Promote Innovation,” Journal of Economic Perspectives 33(3): 163-184 Scotchmer, Suzanne. “Innovation and incentives”. MIT press, 2004.

Module group: Energy Markets

1	**Module name** MSE-58050	**Advanced industrial organization**	**5 ECTS**
2	Courses/lectures	L: Advanced industrial organization (2 SWS) E: Advanced industrial organization (1 SWS)	2,5 ECTS 2,5 ECTS
3	Lecturers	Prof. Zöttl	

4	**Module coordinator**	Prof. Zöttl
5	**Contents**	The goal of this course is to analyze topics that are important for an understanding of decision-making and firm behavior. Besides standard concepts such as price competition, product choice and market power, the course takes on topics such as free entry, switching costs, specific forms of price differentiation and bundling, asymmetric information, tying and platform markets. The integration of real-world cases in the course permits to focus on novel issues, such as competition policy in network markets, platform design, as well as pricing under asymmetric information.
6	**Learning objectives and skills**	Students then know how to model and analyze specific problems arising in the organization of different industries. They are able to connect real-world cases with the tools obtained in class and are able to propose own solution concepts for the situations considered.
7	**Recommended prerequisites**	Solid knowledge in microeconomics, especially game theory (as taught in Bachelorprogrammes)
8	**Integration in curriculum**	3. semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master Arbeitsmarkt und Personal: Wahlbereich Master Sozialökonomik: Vertiefungsbereich Master FACT: Vertiefungs- und Ergänzungsbereich Master Management: Vertiefungsbereich
10	**Method of examination**	Written examination (90 minutes)
11	**Grading procedure**	Written examination (100%). Students can improve their grade through a written assignment which then accounts for 20% of the grade.
12	**Module frequency**	Annually in the winter term
13	**Workload**	Presence: 45 h Independent Study: 105 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Belleflamme/Peitz (2010, 1. Auflage), *Industrial Organization: Markets and Strategies,* Cambridge University Press, ISBN 978-0-521-68159-9.

Module group: Energy Markets

1	**Module name** MSE-52971	**Linear optimization**	**5 ECTS**
2	Courses/lectures	L: Linear and combinatorial optimization (4 weekly lecture hours during the second half of the term) E: Linear and combinatorial optimization (2 weekly lecture hours during the second half of the term)	5 ECTS
3	Lecturers	Prof. Martin, other lecturers of the Mathematics department possible	

4	**Module coordinator**	Prof. Martin
5	**Contents**	The main focus of this lecture is on the theory and solution of linear optimization problems. We will address geometric aspects of linear programming, duality, model creation and sensitivity analysis. This course also covers the Simplex Method for solving linear programs.
6	**Learning objectives and skills**	Students will • autonomously recognize and analyze problems in linear optimization, • discuss basic algorithmic concepts and apply them systematically, • classify methods of this field of study, • gather and assess relevant information and set it in context.
7	**Recommended prerequisites**	Linear Algebra
8	**Integration in curriculum**	3. semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects
10	**Method of examination**	• Written examination (60 minutes)
11	**Grading procedure**	Written examination (100 %)
12	**Module frequency**	Annually in the winter term, in Erlangen Südgelände
13	**Workload**	Presence: 45 h Independent study: 105 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	German
16	**(Recommended) reading**	• Lecture notes • Schrijver: Combinatorial Optimization, Springer 2003 • Chvátal: Linear Programming, W.H. Freeman & Co, 1983

Module group: Energy Markets

1	**Module name** MSE-52972	**Combinatorial optimization**	**5 ECTS**
2	Courses/lectures	L: Linear and combinatorial optimization (4 weekly lecture hours during the first half of the term) E: Linear and combinatorial optimization (2 weekly lecture hours during the first half of the term)	5 ECTS
3	Lecturers	Prof. Martin, other lecturers of the Mathematics department possible	

4	**Module coordinator**	Prof. Martin
5	**Contents**	The main focus of this lecture is on the theory and solution of combinatorial optimization problems. We will address typical problems in graph theory like the Shortest Path Problem, the Spanning Tree or the Max-Flow Min-Cut Theorem. This course also covers basic algorithmic concepts such as Sorting, Greedy algorithm, Depth-first search/Breadth-first search and heuristics.
6	**Learning objectives and skills**	Students will • autonomously recognize and analyze problems in combinatorial optimization, • discuss basic algorithmic concepts and apply them systematically, • classify methods of this field of study, • gather and assess relevant information and set it in context.
7	**Recommended prerequisites**	Linear Algebra
8	**Integration in curriculum**	3. semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects
10	**Method of examination**	• Written examination (60 minutes)
11	**Grading procedure**	Written examinationon (100 %)
12	**Module frequency**	Annually in the winter term, in Erlangen Südgelände (from winter term 2016/17)
13	**Workload**	Presence: 45 h Independent study: 105 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	German
16	**(Recommended) reading**	• Lecture notes • Schrijver: Combinatorial Optimization, Springer 2003 • Korte/Vygen: Combinatorial Optimization, Springer 2005

Module group: Energy Markets

1	**Module name** MSE-52980	**Methods and applications of mathematical optimization**	**5 ECTS**
2	Courses/lectures	L: Methods and applications of mathematical optimization (2 weekly lecture hours) E: Methods and applications of mathematical optimization (1 weekly lecture hour)	5 ECTS
3	Lecturers	Prof. Liers, Prof. Schmidt and further lecturers from the Department of Mathematics	

4	**Module coordinator**	Prof. Liers, frauke.liers@fau.de
5	**Contents**	The focus of this module is on methods for modelling and solving optimization problems as they occur in the field of industry and economics. Advantages and disadvantages of different modelling techniques will be outlined and different reformulations will be presented in order to achieve efficient solution approaches. Students will learn how to present optimization results properly as well as how to interpret and evaluate these results for practical applications. This module covers topics such as optimization of transport networks (gas, water, energy), mathematical modelling and optimization techniques for market mechanisms in the energy sector and dealing with uncertain data.
6	**Learning objectives and skills**	The students • will gain an overview over applications of mathematical optimization • learn mathematical optimization modeling and solution techniques • learn to decide which solution approaches are suitable for which class of models
7	**Recommended prerequisites**	Linear and Combinatorial Optimization
8	**Integration in curriculum**	3. semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects
10	**Method of examination**	• (one worksheet per week) • Written examination (90 minutes) or oral examination (15 minutes)
11	**Grading procedure**	Written examination (100%)
12	**Module frequency**	Annually in the winter term (from winter term 2016/17)
13	**Workload**	Presence: 45 h Independent study: 105 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	German
16	**(Recommended) reading**	• Lecture Notes • Recent research literature

Module group: Energy Markets

1	**Module name** MSE-52592	**Quantitative methods in energy market modelling**	**5 ECTS**
2	Courses/lectures	Lecture: Quantitative methods in energy market modelling (2 SWS) Exercise: Quantitative methods in energy market modelling (1 SWS)	5 ECTS
3	Lecturers	Prof. Zöttl	

4	**Module coordinator**	Prof. Zöttl
5	**Contents**	It is the purpose of the course to understand and quantitatively analyse the economic interaction of the players and institutions in liberalized energy markets. Liberalized electricity markets can be segmented in a regulated part (the networks) and the non-regulated parts (generation and retail) where private companies interact in a market environment. The interaction of the different agents is analysed with computational equilibrium frameworks based the concepts applied in industrial organization. Next to the fundamental understanding of the relevant market interaction, the models allow for a quantitative analysis of proposals for the design of energy markets. The participants thus develop the tools for an autonomous assessment of currently discussed policies in liberalized electricity markets (e.g. changed support schemes for renewables, changed network tariff systems, impact of capacity markets). The course aims at students in the field of economics /business as well as students in the fields of engineering and mathematics. An integral part of the course id formed by homework assignments conducted in groups. The ability to cooperate also beyond the classical limits of each discipline is an important qualification for the students' careers, which should be stimulated in the context of this course.
6	**Learning objectives and skills**	The students: - develop a clear picture of the relevant market participants in liberalized electricity markets and understand their incentives and objectives - learn fundamental concepts and models which allow to analyze the interaction at those markets - get to know important publically available data sources which allow for a quantitative analysis of the market situations considered - know the current challenges when designing those markets and can quantitatively analyze the solutions proposed in the current policy debate.
7	**Recommended prerequisites**	The students should be familiar with the mathematical methods acquired during their Bachelor degree. Institutional knowledge of electricity markets is not required.
8	**Integration in curriculum**	2. semester.
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master Engineering

		Master Mathematics
10	**Method of examination**	Portfolio: Written Examination 90 min (80%) and Written Assignment (20%)
11	**Grading procedure**	Written Examination (80%) and Written Assignment (20%)
12	**Module frequency**	The course takes place during the summer term (SS)
13	**Workload**	Presence: 30h Independent study: 120h
14	**Module duration**	The module duration is 1 semester. To facilitate participation of students from the faculties of science and engineering the lectures will be condensed (ca. 5 appointments)
15	**Teaching and examination language**	English
16	**(Recommended) reading**	- Daniel Kirschen and Goran Strbac: Power System Economics, Wiley 2004. - Steven Stoft: Power System Economics, Wiley 2002. - Wolfgang Ströbele, Wolfgang Pfaffenberger, Michael Heuterkes: Energiewirtschaft, Oldenbourg 2010.

Module group: Energy Markets

1	**Module name** MSE-52990	**Seminar energy markets**	**5 ECTS**
2	Courses/lectures	Seminar energy markets	5 ECTS
3	Lecturers	Prof. Grimm, Prof. Zöttl and assistants	

4	**Module coordinator**	Prof. Grimm and Prof. Zöttl
5	**Contents**	It is the purpose of the seminar to deepen the understanding of the economic interaction of the players and institutions in liberalized energy markets. The participants learn and develop the tools for an autonomous economic assessment of currently discussed policies in liberalized electricity markets (e.g. changed support schemes for renewables, changed network tariff systems, impact of capacity markets). In cooperation with experts from the industry, students are also confronted with the practitioners' perspective which requires a more detailed application of the economic concepts employed. The course aims at students in the field of economics /business as well as students in the fields of engineering and mathematics. In the final workshop, all Students present and mutually discuss their results together with practitioners from the industry. The ability to communicate also beyond the classical limits of each discipline is an important qualification for the students' careers, which should be stimulated in the context of this seminar.
6	**Learning objectives and skills**	The students - learn fundamental concepts and models which allow to analyze the economic interaction at energy markets, - Learn to autonomously apply those methods, - Conceptualize coherent analysis of current policy discussion of how to design energy markets, - In close exchange with a practitioner from industry, learn to apply in meaningful way the conceptual analysis and discussions to real world problems. - Develop their presentation skills.
7	**Recommended prerequisites**	The students should be familiar with the mathematical methods acquired during their Bachelor degree. Institutional knowledge of energy markets is helpful but not required.
8	**Integration in curriculum**	2. semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master Sozialökonomik: freier Vertiefungsbereich Master Engineering Master Mathematics
10	**Method of examination**	Development of a written seminar paper 15 pages (50%), presentation of the seminar paper 20 minutes (30%) and class participation: discussion of a fellow student's seminar paper (20%)
11	**Grading procedure**	50% seminar paper 30% presentation

		20% class participation
12	**Module frequency**	Each term
13	**Workload**	Presence: 45 h Independent study: 105 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	Summer Term: German (due to cooperation with practice partners) Winter Term: English
16	**(Recommended) reading**	- Daniel Kirschen and Goran Strbac: Power System Economics, Wiley 2004. - Steven Stoft: Power System Economics, Wiley 2002. - Wolfgang Ströbele, Wolfgang Pfaffenberger, Michael Heuterkes: Energiewirtschaft, Oldenbourg 2010.

Module group: Energy Markets

1	**Module name** MSE-53180	**Mathematical optimization for communications & signal processing**	**5 ECTS**
2	Courses/lectures	Lecture: (2 SWS), Exercise (1 SWS)	5 ECTS
3	Lecturers	Prof. Liers, further lecturers from the Department of Mathematics	

4	**Module coordinator**	Prof. Liers
5	**Contents**	The focus of this module is on methods for modeling and solving optimization problems as they occur in the field communication and signal processing. Starting from practical applications, different classes of optimization problems are introduced that include linear, mixed-integer linear, continuous non-linear as well as mixed-integer non-linear optimization problems. Advantages and disadvantages of different modeling techniques will be outlined and different reformulations will be presented in order to achieve efficient solution approaches. Students will learn how to present optimization results properly as well as how to interpret and evaluate these results for practical applications in communications and signal processing.
6	**Learning objectives and skills**	The students - have an overview over mathematical optimization in practice - apply mathematical optimization modeling and solution techniques - decide which solution approaches are suitable for which class of models - know available software and how to use it
7	**Recommended prerequisites**	A bachelor course in Mathematics for Engineers. Recommended are 3-4 courses in Mathematics for Engineers.
8	**Integration in curriculum**	3. semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects
10	**Method of examination**	Written examination (90min)
11	**Grading procedure**	Written examination (100%)
12	**Module frequency**	Annually in the winter term
13	**Workload**	Presence: 45 h Independent study: 105 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	Teaching is in English only. In the exam, each student can choose between English and German.
16	**(Recommended) reading**	

Module group: Energy Markets

1	**Module name** MSE-54340	**Seminar Optimierung in Energiemärkten** (Seminar optimiziation in energy markets)	**5 ECTS**
2	Courses/lectures	Seminar Optimierung in Energiemärkten (2 SWS)	5 ECTS
3	Lecturers	Prof. Liers, Prof. Martin	

4	**Module coordinator**	Prof. Liers
5	**Contents**	Die aktuell angebotenen Themen werden von den Dozenten rechtzeitig bekannt gegeben.
6	**Learning objectives and skills**	Die Studierenden - Erarbeiten sich vertiefende Fachkompetenzen im Bereich der Optimierung von Energiemärkten; - Analysieren Fragestellungen und Probleme im Bereich der Optimierung von Energiemärkten und lösen diese mit wissenschaftlichen Methoden; - Verwenden relevante Präsentations- und Kommunikationstechniken und präsentieren die mathematischen Sachverhalte in mündlicher und schriftlicher Form; - Tauschen sich untereinander und mit dem Dozenten über Informationen, Ideen, Probleme und Lösungen auf wissenschaftlichem Niveau aus.
7	**Recommended prerequisites**	lineare und kombinatorische Optimierung
8	**Integration in curriculum**	3. semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects
10	**Method of examination**	Präsentation 90 Minuten (75%) Präsentationspapier 5-10 Seiten (25%)
11	**Grading procedure**	Präsentation 90 Minuten (75%) Präsentationspapier 5-10 Seiten (25%)
12	**Module frequency**	Annually in the winter term
13	**Workload**	Presence: 45 h Independent study: 105 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	Deutsch und Englisch
16	**(Recommended) reading**	

1	**Module name** MSE-53285	**Empirical environmental economics**	**ECTS** **5**
2	Courses/lectures	Lecture: Empirical environmental economics (2.5 SWS) Exercise: Empirical environmental economics (1.5 SWS)	ECTS 3 2
3	Lecturers	Prof. Liebensteiner	

4	**Module coordinator**	Prof. Liebensteiner
5	**Contents**	This module provides an introduction to focal issues of environmental economics with a particular focus on empirical investigations. The module sets out to make students familiar with state-of-the-art econometric research methods in environmental economics. Key issues will be carbon emissions from the energy and transportation sectors, carbon pricing, integration and subsidization of renewable energies, and the effectiveness of different climate policies.
6	**Learning objectives and skills**	• Students get to know fundamental problems of environmental economics (e.g. problems of air pollution from burning fossil fuels, integration of renewable energy sources, and effective policy making) • Students get to know recent econometric approaches to identifying the effects of environmental policies. - Students will carry out a hands-on analysis of an environmental problem using real-world data and statistical software (STATA).
7	**Recommended prerequisites**	Basic microeconomics Basic econometrics (at least multivariate OLS regressions)
8	**Integration in curriculum**	3. Semester
9	**Module compatibility**	Master of Economics: Elective compulsory subjects Master of International Business Studies: Area Studies Master Arbeitsmarkt und Personal: Wahlbereich Master Management: Vertiefungsbereich Master Sozialökonomik: freier Vertiefungsbereich Master Wirtschaftsingenieurwesen: Allgemeines Wahlmodul
10	**Method of examination**	Written examination (90 min.) Presentation (10 min.)
11	**Grading procedure**	Written examination (80%) Presentation (20%)
12	**Module frequency**	Annually in the winter term
13	**Workload**	Attendance: 60 h Self-study: 60 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	English
16	**(Recommended)**	• Journal articles: will be distributed to course participants via

	reading	StudOn • Wooldridge, J.M. 2012 Introductory Econometrics: A Modern Approach. South-Western Cengage Learning.

1	**Module name** MSE-53286	**Economics of climate change (ECC)**	**5 ECTS**
2	Courses/lectures	Lecture: Economics of climate change (2 credit hours) Exercise: Economics of climate change (2 credit hours)	5 ECTS
3	Lecturers	Veronika Grimm, Jonas Egerer	

4	**Module coordinator**	Veronika Grimm, Jonas Egerer
5	**Contents**	This course focuses on the interactions between society, the *economy* and *climate change*: one of the greatest challenges of our time. The course will discuss the origin of environmental challenges, technological options for their solution and policies to promote the transformation to a climate neutral economy and society. The following issues will be covered: • Welfare economics and the environment • Externalities and origins of the sustainability problem • Climate change and the greenhouse gas effect • Global climate scenarios • Economics of low-carbon technologies • Global and regional low carbon scenarios • Pollution control: Targets and policy instruments • International Cooperation: Kyoto Protocol and Paris Agreement • Applications of Climate Policy: EU-ETS and national CO_2-tax • Case studies for the energy, heat and mobility sector
6	**Learning objectives and skills**	Students who participate in this course will become familiar with the physical science basis of climate change, economic concepts for the allocation of public goods, scenarios for low-carbon energy systems from an technological and an economic perspective, and policy instruments to reduce greenhouse gas emissions. Students who successfully participate in this module can: • Explain the physical basics of climate change • Understand economic concepts for public goods • Compare different low-carbon technologies • Describe pathways towards sustainable energy systems • Discuss different policy instruments • Understand the EU-ETS and national carbon taxes • Develop sector specific scenarios in case studies
7	**Prerequisites**	To succeed in this course, students will need to apply acquired knowledge from e.g. economics and mathematics.
8	**Integration in curriculum**	3rd semester

9	**Module compatibility**	Master Economics: Elective compulsory subjects Master WING: Vertiefungsmodul
10	**Method of examination**	written exam (60 minutes) + project assignments
11	**Grading procedure**	Written examination 50% and project assignments 50% (5 ECTS)
12	**Module frequency**	Annually (Module is not offered in the WS 20/21)
13	**Workload**	Contact hours: 60 h Independent study: 90 h
14	**Module duration**	One semester
15	**Teaching and examination language**	English
16	**Recommended reading**	Natural Resource and Environmental Economics. Roger Perman et al. Addison Wesley.

Module group: Health Economics

1	**Module name** MiGG-52162	**Applied empirical health economics**	**5 ECTS**
2	Courses/lectures	S: Seminar applied empirical health economics (3 SWS)	5 ECTS
3	Lecturers	Prof. Tauchmann and Assistants	

4	**Module coordinator**	Prof. Tauchmann
5	**Contents**	The project seminar aims on introducing students to empirical research in the field of health economics. . For this, two options are available. The first is to replicate and possibly extend an empirical analysis found in a research paper that is selected by the lecturer. The second is to conduct an independent empirical analysis based on one chapter of the textbook Jones, A. et al. (2013): Applied Health Economics. Each chapter of the book covers a topic of empirical health economics such as „inequality in health“, with a focus on specific methods (generalized Lorenz curve, probit regression for ordered categorical data, interval regression etc.) that are well suited for analyzing the specific research question. In particular, using these methods using the statistical software Stata® und using them for applied empirical work is key for the seminar. Each student individually works on an empirical project. Support and advise how to do this is provided on the individual student level. In order to get (more) familiar with stata, students may participate in a Stata-crash course prior to working on their projects. Students write a seminar thesis in which they describe and communicate their research and give a presentation of their thesis in a seminar.
6	**Learning objectives and skills**	Students - become familiar with specific methods which are relevant in empirical health economics in health and learn to apply them to specific research questions - deepen their methodological competences by using them in applied work - acquire competences in developing and empirically addressing research questions in health economics - learn to present and to discuss results of empirical research
7	**Recommended prerequisites**	• Profound Knowledge in micro econometrics • Basic knowledge in the statistical software Stata ® (the course starts with an elective Stata® course, which is intended to quality students who do not know Stata® to successfully participate in the seminar) • Basic knowledge in health economics
8	**Integration in curriculum**	3. semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master Gesundheitsmanagement und Gesundheitsökonomie: Wahlbereich (MiGG-52161) Master Management: Vertiefungsbereich (MiGG-52161) Master Arbeitsmarkt und Personal: Wahlbereich (MiGG-52161)

		Master Sozialökonomik: freier Vertiefungsbereich (MiGG-52161)
10	**Method of examination**	Presentation (Präsentation, 20 minutes) and seminar paper (Seminararbeit, 15 pages)
11	**Grading procedure**	35% presentation (Präsentation), 65% seminar paper (Seminararbeit)
12	**Module frequency**	yearly in the winter term
13	**Workload**	Seminar attendance: 30 h Independent study: 120 h
14	**Module duration**	1 semester
15	**Teaching and examination language**	German and English
16	**(Recommended) reading**	Jones A., Rice, N. Bago d'Uva, T. & Balia, S. (2013): Applied Health Economics, 2nd ed., Routledge.

Module group: Health Economics

	Module name MiGG-56792	**The economics of health insurance**	**5 ECTS**
1	Courses/lectures	L & E: The economics of health insurance	5 ECTS
2	Lecturers	Prof. Harald Tauchmann and Assistants	

3	**Module coordinator**	Prof. Tauchmann
4	**Contents**	The course covers the economics of health care taking a microeconomic perspective. The course focusses on the market for health insurance and its imperfections that originate from the specific characteristics of health as a commodity and result in market failure and hence undesirable market outcomes such as adverse selection, moral hazard, and risk selection. Based on the theoretical analysis implications for the question of how to design a health (insurance) system are derived.
5	**Learning objectives and skills**	The students - learn to analyze the market for health insurance - acquire knowledge about the institutions of the German health insurance system and how to assess them from a theoretical perspective - test the theoretical predictions using empirical analyses
6	**Recommended prerequisites**	Solid skills in microeconomics, basic skills in econometrics
7	**Integration in curriculum**	2. semester
8	**Module compatibility**	Master Economics: Elective compulsory subjects Master Arbeitsmarkt und Personal: Wahlbereich (MiGG-56792, 56790) Master Sozialökonomik: freier Vertiefungsbereich oder in Bereich „Spezielle VWL“ (MiGG-56790, 56792) Master Wirtschaftspädagogik, Studienrichtung I: Wahlbereich (MiGG-56790) Master Management: Vertiefungsbereich (MiGG-56790) Master in Gesundheitsmanagement und Gesundheitsökonomie (MiGG-56790) (cannot be combined with the equivalent German language module “Gesundheitsökonomie I (Health Economics I) MiGG-56790”
9	**Method of examination**	90-minute written examination (100%). Students can improve their grade through giving a 20 minute presentation on a research paper that is related to a topic covered by the lecture, which then accounts for 20% of the grade (this requires the written exam to be graded not worse than 4.0; the max. improvement is 0.7 grades)
10	**Grading procedure**	Written examination (100 %)
11	**Module frequency**	Annually in the summer term
12	**Workload**	Presence: 45 h Independent study: 105 h
13	**Module duration**	Weekly 90 min. lecture and fortnightly 90 min. exercise class over

		the lecture period (1 semester)
14	**Teaching and examination language**	English
15	**(Recommended) reading**	Zweifel, P., Breyer, F., Kifmann, M. (2009): Health Economics, Springer 2nd ed.

Module group: Health Economics

1	**Module name** MiGG-52153	**The supply of medical services**	**5 ECTS**
2	Courses/lectures	L & E: The supply of medical services (2+1 SWS)	5 ECTS
3	Lecturers	Prof. Tauchmann and Assistants	

4	**Module coordinator**	Prof. Tauchmann
5	**Contents**	In this course the market for medical services and in particular the supply of services from physicians and hospitals is analyzed. The focus is on behavioural incentives and how they are shaped by the charactaristics of health as a special good as well as by institutional settings. Topics to be covered are “supplier induced demand”, “quality-quantity-relationship in hospitals” and “optimal reimbursement schemes”. The course will also cover individual health behaviour. Throughout the course microeconomic models will be used.
6	**Learning objectives and skills**	Students • Understand the behavior of physicians from a microeconomic perspective • Can evaluate governmental regulations in health care markets • Can discuss reforms in the health care sector. -
7	**Recommended prerequisites**	Solid knowledge of microeconomics and econometrics
8	**Integration in curriculum**	2. Semester
9	**Module compatibility**	Master Economics: Elective compulsory subjects Master Gesundheitsmanagement und Gesundheitsökonomie: Wahlbereich Master Management: Vertiefungsbereich Master Sozialökonomik: sozialökonomischer Vertiefungsbereich oder freier Vertiefungsbereich -Master Arbeitsmarkt und Personal: Wahlbereich Master Wirtschaftspädagogik, Studienrichtung I: Wahlbereich
10	**Method of examination**	Written examination (90 Min.)
11	**Grading procedure**	Written examination (100%)
12	**Module frequency**	Annually in the summer term
13	**Workload**	Attendance: 45 h Independent study: 105 h

14	**Module duration**	1 Semester
15	**Teaching and examination language**	English
16	**(Recommended) reading**	Zweifel, P., Breyer, F., Kifmann, M. (2013): Gesundheitsökonomik, Springer Gabler, 6. Aufl.

Module group: Health Economics

1	**Modulbezeichnung** MiGG-54821	**Gesundheitsökonomische Evaluationen I** (Health economic evaluations I)	**5 ECTS**
2	Lehrveranstaltungen	S: Gesundheitsökonomische Evaluationen I	5 ECTS
3	Lehrende	Prof. Schöffski und Mitarbeitende	

4	**Modulverantwortliche/r**	Prof. Schöffski
5	**Inhalt**	Bei allen öffentlichen Großprojekten sind Kosten-Nutzen-Analysen zwingend vorgeschrieben. Die Methodik wurde im Gesundheitswesen weiterentwickelt, wo auch „intangible“ Effekte (z.B. Lebensqualität) berücksichtigt werden müssen. In der Veranstaltung werden die unterschiedlichen Studienformen, die Grundprinzipien, das Design von gesundheitsökonomischen Studien und insbesondere das QALY- und das Effizienzgrenzenkonzept behandelt.
6	**Lernziele und Kompetenzen**	Die Studierenden - ermessen den Unterschied zwischen Effektivität und Effizienz im Gesundheitswesen - diskutieren verschiedene Möglichkeiten der Berechnung von Kosten und Nutzen medizinischer Maßnahmen und setzen Kosten und Nutzen verschiedener medizinischer Maßnahmen zueinander in Beziehung - beurteilen aktuelle Diskussionen zu dieser Thematik - vergleichen die verschiedenen Grundformen und -prinzipien gesundheitsökonomischer Evaluationen sowie die damit verbundenen Konzepte - schätzen das QALY-Konzept im Hinblick auf seine Relevanz ein - skizzieren das Design einer gesundheitsökonomischen Studie
7	**Empfohlene Voraussetzungen für die Teilnahme**	Keine
8	**Einpassung in Musterstudienplan**	2. Semester
9	**Verwendbarkeit des Moduls**	Master Gesundheitsmanagement und Gesundheitsökonomie: Pflichtbereich Master Management: Pflichtbereich II (MIM-54820) Master Economics:Elective compulsory subjects
10	**Studien- und Prüfungsleistungen**	60 min. Klausur (tw. mit MC-Aufgaben)
11	**Berechnung Modulnote**	Klausur (100 %)
12	**Turnus des Angebots**	Jährlich im SS
13	**Arbeitsaufwand**	Präsenzzeit: 45 h Eigenstudium: 105 h
14	**Dauer des Moduls**	1 Semester
15	**Unterrichts- und Prüfungssprache**	Deutsch
16	**(Vorbereitende) Literatur**	Schöffski / Graf von der Schulenburg (Hrsg.): Gesundheitsökonomische Evaluationen, 3. oder 4. Aufl., Berlin u. a., 2007, 2008 oder 2012.

Module group: Health Economics

1	**Modulbezeichnung** MiGG-52850	**Gesundheitsökonomische Evaluationen II** (Health economic evaluations II)	**5 ECTS**
2	Lehrveranstaltungen	S: Gesundheitsökonomische Evaluationen II	5 ECTS
3	Lehrende	Prof. Schöffski und Mitarbeitende	

4	**Modulverantwortliche/r**	Prof. Schöffski
5	**Inhalt**	Die Thematik wird in dieser Veranstaltung aufbauend auf der Grundlagenveranstaltung im 1. Semester weiter vertieft. Insbesondere werden hier die Methoden der Lebensqualitätsmessung behandelt und kritisch diskutiert. Weiterhin werden Modellierungen in Form von Entscheidungsbäumen und Markov-Modellen theoretisch und praktisch durchgeführt. Fallbeispiele runden diese Veranstaltung ab.
6	**Lernziele und Kompetenzen**	Die Studierenden - verstehen die Problematik und die Relevanz der Messung von Lebensqualitätseffekten - können entsprechende Lebensqualitätsmessungen eigenständig durchführen - sind in der Lage verschiedene Modellierungsansätze beurteilen zu können - können einfache Modellierungen selbst konzipieren, durchführen und die Ergebnisse interpretieren.
7	**Empfohlene Voraussetzungen für die Teilnahme**	Die Pflichtveranstaltung Gesundheitsökonomische Evaluationen I sollte vor diesem Modul belegt worden sein.
8	**Einpassung in Musterstudienplan**	3. Semester
9	**Verwendbarkeit des Moduls**	Master Gesundheitsmanagement und Gesundheitsökonomie: Pflichtbereich Master Management: Vertiefungsbereich Master Economics: Elective compulsory subjects
10	**Studien- und Prüfungsleistungen**	Klausur (60 Min.) (tw. mit MC-Aufgaben)
11	**Berechnung Modulnote**	Klausur (100 %)
12	**Turnus des Angebots**	Jährlich im WS
13	**Arbeitsaufwand**	Präsenzzeit: 45 h Eigenstudium: 105 h
14	**Dauer des Moduls**	1 Semester
15	**Unterrichts- und Prüfungssprache**	Deutsch
16	**(Vorbereitende) Literatur**	Schöffski / Graf von der Schulenburg (Hrsg.): Gesundheitsökonomische Evaluationen, 3. oder 4. Aufl., Berlin u. a., 2007, 2008 oder 2012.

Free elective modules

- Up to 2 free elective modules worth 5 ECTS credits each may be taken. These are modules offered by the Faculty. When choosing modules, a subject-specific increase in expertise compared to the preceding Bachelor's degree must be proven. The programme coordinator must approve the suitability of the proposed courses.
- An overview on the available modules can be found here: https://www.campus.uni-erlangen.de/stgstruct/ Master of Science (65) Economics (636) PO-Version: 20152 / 1860 Miscellaneous.
- Languages as free elective modules: One course independent of level. Second course must be of level B2 or higher.

1	**Module name** MSE-55691	**Study abroad module 1**	**5 ECTS**
2	Courses/lectures	Study abroad module 1 (Auslandsmodul 1)	5 ECTS
3	Lecturers	Lecturers in foreign University Dozierende an Universität im Ausland	

4	**Module coordinator**	Prof. Rincke
5	**Contents**	EN: The content of the courses visited in the foreign university must be related to the topic of the master's content. The master coordinator decides on the suitability of the courses using German or English documents. DE: Die an der ausländischen Universität besuchten Lehrveranstaltungen sollten einen thematischen Bezug zu den Inhalten des Masters haben. Eine Prüfung der Eignung der Lehrveranstaltungen erfolgt durch den Masterkoordinator auf der Basis deutsch- oder englischsprachiger Unterlagen.
6	**Learning objectives and skills**	EN: Students acquire comprehensive, detailed and specialised knowledge on the research frontier. They are able to communicate this knowledge in a clear and unambiguous way in a foreign language. Besides gaining expertise students gain intercultural and social skills. Students can organize themselves and respond to changing requirements independently and in a problem-solving attitude. DE: Die Studierenden verfügen über umfassendes, detailliertes und spezialisiertes Wissen auf dem neuesten Erkenntnisstand der Wissenschaft. Sie können dieses Wissen in klarer und eindeutiger Weise auch in einer Fremdsprache vermitteln. Neben den Fachkompetenzen erwerben die Studierenden interkulturelle und soziale Kompetenzen. Die Studierenden können sich selbst organisieren und auf sich verändernde Anforderungen eigenständig und lösungsorientiert reagieren.
7	**Recommended prerequisites**	Learning Agreement
8	**Integration in curriculum**	2. or 3. semester
9	**Module compatibility**	Master Economics: Free elective modules

10	**Method of examination**	EN: In accordance with the method of examination of the foreign University. DE: In Übereinstimmung mit den Studien- und Prüfungsleistungen der ausländischen Universität.
11	**Grading procedure**	EN: Dependent on the grading scale and ECTS of the course. DE: Vom Notenschlüssel und den ECTS der Lehrveranstaltung abhängig.
12	**Module frequency**	EN: In accordance with the course offer at the foreign University. DE: In Übereinstimmung mit dem Kursangebot an der ausländischen Universität.
13	**Workload**	EN: In accordance with the time input of the courses of the foreign University. DE: In Übereinstimmung mit dem Arbeitsaufwand der Lehrveranstaltungen an der ausländischen Universität.
14	**Module duration**	1 Semester
15	**Teaching and examination language**	EN: In accordance with the lecture language of the foreign university. DE: Unterrichtssprache des Landes der ausländischen Universität
16	**(Recommended) reading**	EN: Considering the specifications of the course at the foreign university. DE: Berücksichtigung der Angaben zu den Lehrveranstaltungen an der ausländischen Universität

Module group: Public Economics

1	**Module name** MSE-55692	**Study abroad module 2**	**5 ECTS**
2	Courses/lectures	Study abroad module 2 (Auslandsmodul 2)	5 ECTS
3	Lecturers	Lecturers in foreign University Dozierende an Universität im Ausland	

4	**Module coordinator**	Prof. Rincke
5	**Contents**	EN: The content of the courses visited in the foreign university must be related to the topic of the master's content. The master coordinator decides on the suitability of the courses using German or English documents. DE: Die an der ausländischen Universität besuchten Lehrveranstaltungen sollten einen thematischen Bezug zu den Inhalten des Masters haben. Eine Prüfung der Eignung der Lehrveranstaltungen erfolgt durch den Masterkoordinator auf der Basis deutsch- oder englischsprachiger Unterlagen.
6	**Learning objectives and skills**	EN: Students acquire comprehensive, detailed and specialised knowledge on the research frontier. They are able to communicate this knowledge in a clear and unambiguous way in a foreign language. Besides gaining expertise students gain intercultural and social skills. Students can organize themselves and respond to changing requirements independently and in a problem-solving attitude. DE: Die Studierenden verfügen über umfassendes, detailliertes und spezialisiertes Wissen auf dem neuesten Erkenntnisstand der Wissenschaft. Sie können dieses Wissen in klarer und eindeutiger Weise auch in einer Fremdsprache vermitteln. Neben den Fachkompetenzen erwerben die Studierenden interkulturelle und soziale Kompetenzen. Die Studierenden können sich selbst organisieren und auf sich verändernde Anforderungen eigenständig und lösungsorientiert reagieren.
7	**Recommended prerequisites**	Learning Agreement
8	**Integration in curriculum**	2. or 3. semester
9	**Module compatibility**	Master Economics: Free elective modules
10	**Method of examination**	EN: In accordance with the method of examination of the foreign University. DE: In Übereinstimmung mit den Studien- und Prüfungsleistungen der ausländischen Universität.
11	**Grading procedure**	EN: Dependent on the grading scale and ECTS of the course. DE: Vom Notenschlüssel und den ECTS der Lehrveranstaltung abhängig.
12	**Module frequency**	EN: In accordance with the course offer at the foreign University. DE: In Übereinstimmung mit dem Kursangebot an der ausländischen Universität.

13	**Workload**	EN: In accordance with the time input of the courses of the foreign University. DE: In Übereinstimmung mit dem Arbeitsaufwand der Lehrveranstaltungen an der ausländischen Universität.
14	**Module duration**	1 Semester
15	**Teaching and examination language**	EN: In accordance with the lecture language of the foreign university. DE: Unterrichtssprache des Landes der ausländischen Universität
16	**(Recommended) reading**	EN: Considering the specifications of the course at the foreign university. DE: Berücksichtigung der Angaben zu den Lehrveranstaltungen an der ausländischen Universität

MSE Master of Science in Economics

Master's thesis

1	**Module name** MSE-1997	**Master's thesis**	**30 ECTS**
2	Courses/lectures	Master's thesis (0 SWS) S: Master's thesis seminar (2 SWS)	25 ECTS 5 ECTS
3	Lecturers	All professors of the Master in Economics	

4	**Module coordinator**	All professors of the Master in Economics
5	**Contents**	EN: Students write their master's thesis. In the seminar students present and discuss their master's thesis. DE: Die Studierenden erstellen Ihre Masterarbeit. Im Rahmen des Seminars präsentieren und diskutieren die Studierenden ihre Masterarbeiten.
6	**Learning objectives and skills**	EN: Master's thesis: In the master's thesis students show that they are able to work on a topic or an economic issue within a prescribed period independently and with scientific methods. They can prepare the findings concisely and interpret them competently. Master's thesis seminar: Students discuss their own and other contributions to economic research. The seminar should assist students in the preparation of the master's thesis and give them important support to the independent solution and presentation of issues. DE: Masterarbeit: In der Masterarbeit zeigen Studierende, dass sie in der Lage sind innerhalb einer vorgegebenen Frist ein Thema bzw. eine ökonomische Fragestellung selbständig und mit wissenschaftlichen Methoden zu bearbeiten sowie die Erkenntnisse prägnant aufzubereiten und kompetent zu interpretieren. Seminar zur Masterarbeit: Studierende diskutieren eigene und andere Beiträge zur volkswirtschaftlichen Forschung. Das Seminar soll die Studierenden bei der Anfertigung der Masterarbeit unterstützen und ihnen wichtige Hilfen zur selbständigen Lösung und Darstellung von Problemen geben.
7	**Recommended prerequisites**	EN: Courses from the 1. – 3. semesters DE: Besuch der Veranstaltungen des 1. - 3. Semesters
8	**Integration in curriculum**	4. semester
9	**Module compatibility**	Master Economics
10	**Method of examination**	EN: Master's thesis: written thesis paper Master's thesis seminar: presentation of the master's thesis DE:

		Masterarbeit: Schriftliche Arbeit Seminar: Präsentation zur Masterarbeit
11	**Grading procedure**	EN: Master's thesis 25 ECTS Presentation in the seminar 5 ECTS DE: Masterarbeit 25 ECTS Präsentation im Seminar 5 ECTS
12	**Module frequency**	EN: Master's thesis: flexible timing Master's thesis seminar: annually in the summer term DE: Masterarbeit: Angebot zeitlich flexibel Seminar zur Masterarbeit: Jährlich im Sommersemester
13	**Workload**	EN: Master's thesis: Independent study: 750 h Master's thesis seminar: Presence: 30 h Independent study: 120 h DE: Masterarbeit: Eigenstudium: 750 h Seminar zur Masterarbeit: Präsenzzeit: 30 h Eigenstudium: 120 h
14	**Module duration**	1 semester (6 months)
15	**Teaching and examination language**	German or English
16	**(Recommended) reading**	EN: Changing current research literature DE: Wechselnde aktuelle Forschungsliteratur