

Guideline for the Study Program
“Empirical Economics”
at the chair of Empirical Economics,
University of Bayreuth

Contents

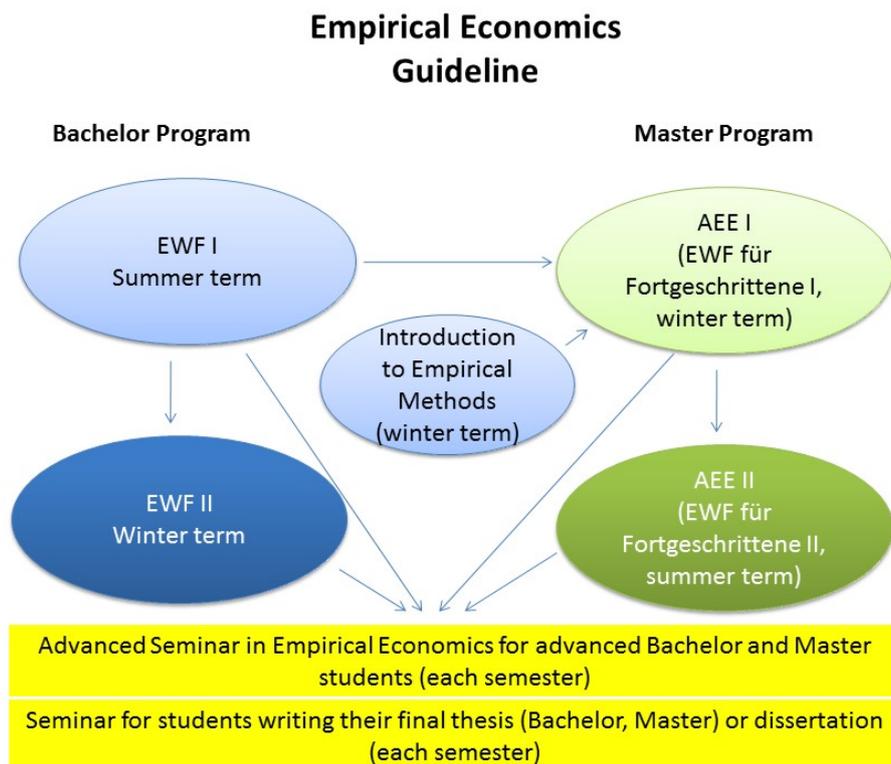
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1 Overview

Each year the chair offers seven different courses, including five lectures (with tutorials) and two seminars. There is one seminar for advanced Bachelor and Master students (“Advanced seminar in Empirical Economics for Bachelor and Master Students”) and one seminar for students that write their final thesis (Bachelor or Master) or dissertation with us. The structure of the program is depicted in the following graphic. Additionally, courses of “Advanced Empirical Economics II” are partly held as seminars and blocked, such as the regular seminar “Empirical International Trade” in the winter semester.

Note: “EWF” is the German abbreviation for “Empirical Economics”, and “AEE” for “Advanced Empirical Economics”.



2 Empirical Economics I

The course “EWF I” (“Empirische Wirtschaftsforschung I”) is a basic introductory lecture on empirical economics that is offered each summer term. It aims at understanding and applying the methods of empirical economics, using the background knowledge of “Statistics I” and “Statistics II”.

2.1 Content

The course deals with the following topics:

- The role of theory in empirical research and its importance in terms of a fundamental basis.
- Analyzing the role and the importance of data in empirical research.
- Introduction and derivation of the Ordinary Least Squares method (OLS) (linear and multiple regression models, estimation, inference, dummy variables).
- Introduction to non-linear specifications, which can be estimated with the help of OLS (model transformation, interaction terms, polynomials).
- Causality versus correlation.
- Analyzing the concept of heteroscedasticity (including methods to identify and solve the problem of heteroscedasticity).
- Applying the theory of empirical analysis, using the Software package Stata (<http://www.stata.com/>).
- Analyzing the scope and limitations of empirical methods.

Selecting the content of this course, we put a special focus on derivations and foundations of empirical methods that allow to understand the intuition behind it. Even though very few students are going to subscribe themselves to research in empirical economics, most of you may apply at least some

of those estimators in your future job. Therefore, it is important to gain sufficient background knowledge that enables you to interpret the results and understand their limitations.

2.2 Requirements

Each week, there will be a two-hour lecture and a one-hour tutorial, which is held in the PC-lab. The course is taught in German.

The course is based on the lecture slides and any introductory econometrics textbook will be able to serve as additional background reading.

Students will have to attend a two-hour exam at the end of the semester. The course is credited with 5 ECTS.

The workload is as follows:

Attendance at the lecture	30 h
Preparation and follow-up for the lecture	60 h
Active participation in the tutorial	15 h
Preparation and follow-up for the tutorial	15 h
Exam preparation	30 h
<hr/> Total	<hr/> 150 h

2.3 Target group

“EWF I” is obligatory for Bachelor students in Economics and IWE (Module MeMö).

Students of the Bachelor program “P&E” may account “EWF I” in the module “G5-1” (EWF I) or as “G5-2” (Statistik II).

Bachelor students in “Betriebswirtschaftslehre” may account “EWF I” in Module G, whenever they want to specialize in the field of Empirical Economics. This is highly recommended if you plan to focus on empirical methods in your future master program.

Master students who have been obliged to take the course “EWF I” in order to compensate for insufficient knowledge of empirical methods to finish their Master’s degree and who are not able to follow “EWF I” as they do not

speaking German can attend the “Introduction to Empirical Methods”. This course is regularly offered every winter term shortly before the regular lecture period begins. All Master students who are non-native speakers of German can then write an exam in “EWF I” in English which is offered on the same date as the second sitting of the regular exam of “EWF I”. Students who cannot register for the exam using CAMPUSonline can register by sending an email to vw16@uni-bayreuth.de until one week before the exam date.

All other students are more than welcome to attend “EWF I”, especially if they plan to focus on empirical methods in their future master program.

In case you are planning to do your master degree at another (foreign) university or in another study program, you should consider that empirical courses are required for the enrolment most of the time.

3 Empirical Economics II

The course “EWF II” (“Empirische Wirtschaftsforschung II”) takes place each winter term and builds on the introductory lecture “EWF I”.

The course aims at applying the foundations of “EWF I” by using further methods of Time Series Analysis and Panel Data Analysis.

3.1 Content

The course deals with the following topics:

- Empirical description of data sets.
- Data pooling.
- Estimating differences-in-differences.
- Estimating Random effects.
- Estimating Fixed effects.
- ARMA-Processes.
- Box-Jenkins-Approach.
- Prediction methods.
- Causality.
- Applying the theory of empirical analysis, using the Software package Stata (<http://www.stata.com/>).

3.2 Requirements

Each week, there will be a two-hour lecture and a one-hour tutorial, which is held in the PC-lab. The course is taught in English.

The course is based on the lecture slides and any introductory econometrics textbook will be able to serve as additional background reading.

Students will have to attend a two-hour exam at the end of the semester. The course is credited with 5 ECTS.

The workload is as follows:

Attendance at the lecture	30 h
Preparation and follow-up for the lecture	60 h
Active participation in the tutorial	15 h
Preparation and follow-up for the tutorial	15 h
Exam preparation	30 h
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Total	150 h

3.3 Target group

Students in the Bachelor program “Economics” may account “EWF II” in the module “Spezialisierung”.

Students in the Bachelor program “IWE” may choose “EWF II” in the module “Schwerpunktbereich VET: Vertiefung Empirie und Theorie”.

Students in the Bachelor program “P&E” may account “EWF II” in the Module “E6 (Vertiefung “Economics”)

Students in the Bachelor program “Betriebswirtschaftslehre” may choose “EWF II” as a specialization course. Especially for students that are interested in panel data analysis and time series analysis this course is highly recommended.

All other students may account “EWF II” as an elective course. This is especially recommended for those students who want to focus on empirical methods in their future master program.

4 Introduction to Empirical Methods

The course “Introduction to Empirical Methods” gives an introduction to the empirical methods similar in content to the one given in “EWF I”. However, it is blocked at the beginning of each winter semester and taught in English.

It serves as a preparation course for “Advanced Empirical Economics I”.

Further, it is a compulsory course for Master History&Economics students in the module “Skill Convergence”.

5 Advanced Empirical Economics I

The course “AEE I” (“Advanced Empirical Economics I”, “Empirische Wirtschaftsforschung für Fortgeschrittene I”) is a master level course that builds on the introductory lecture in “EWF I”. It is offered each winter term.

The course provides an understanding of the foundations of different estimation methods, which are crucial to analyze micro- and macro data. This serves as a basis for data analysis of economically important issues. By the end of the course, successful students will display a critical awareness of the context specific scope and limitations of different empirical analyses. Besides the theoretical foundations, students will learn to practically apply empirical methods and do so with the help of an adequate software package.

Note: Attending the course “EWF II” is **not** crucial for a successful participation in “AEE I”.

5.1 Content

The course deals with the following topics:

- Linear Least Square Method (derivation with the help of matrix algebra).
- Introduction to asymptotic theory.
- Introduction to small sample properties of estimators.
- Maximum Likelihood Method.
- Generalized Method of Moments.
- Using an adequate software package. (Software program that is specialized on matrices: Scilab, <http://www.scilab.org/>).

5.2 Requirements

The course consists of a two-hour lecture and a two-hour tutorial, which is held in the PC-lab. The course is taught in English.

The main text book is Cameron, A. Colin, Pravin K. Trivedi (2005), Microeconometrics - Methods and Applications, Cambridge University Press.

Students will have to attend a two-hour exam at the end of the semester. The course is credited with 8 ECTS.

The workload is as follows:

Attendance at the lecture	30 h
Preparation and follow-up for the lecture	60 h
Active participation in the tutorial	30 h
Preparation and follow-up for the tutorial	60 h
Exam preparation	60 h
<hr/> Total	<hr/> 240 h

5.3 Target group

“AEE I” is obligatory in the Master program “Economics”, the Master program “P&E” and the Master program “History&Economics”.

Students of the Bachelor program “P&E” may attend “AEE I” already as a specialization course.

Students of the “IWG” Master program may account “AEE I” in the specialization module “Ökonomische Modellbildung und empirische Analyse” or as an elective.

In the Master program “BWL”, students may account “AEE I” as an elective in the Basis module B1. The course is credited with 6 ECTS.

All other students may account “AEE I” as an elective.

Note: For those Master students who do have to attend a course in Empirical Economics but only have a background knowledge of “Statistics I” and “Statistics II”, it is highly recommended to attend “Introduction to Empirical Methods” before.

6 Advanced Empirical Economics II

The course “AEE II” (“Advanced Empirical Economics II”, “Empirische Wirtschaftsforschung für Fortgeschrittene II”) is a master level course that generally builds on “AEE I”. A course “AEE II” is typically offered each term.

“AEE II” aims at providing further insights on empirical methods on the basis of and/or beyond the ones covered in the course “AEE I”. In particular, students will have to demonstrate the ability to choose and adjust the right (estimation) model. Furthermore, they will have to display a critical awareness of the empirical results and should be able to interpret and classify them. As opposed to the course “AEE I”, this course focuses mainly on the application of quantitative methods. Partly, external experts will be hired to give the course. “AEE II” courses may be held in form of a seminar or a lecture with tutorial.

6.1 Content

The course deals with the following topics:

- Short revision and further insight on important econometric models.
- Broadening the knowledge on methodological foundations.
- Empirical analysis, taking examples that concern labor market economics, industrial economics, international economic relations, innovation economics, political economy, health economics, educational economics, finance and taxation, as well as migration.
- Broadening the knowledge on empirical analysis with the help of adequate software packages.

For example, we regularly offer in the winter term the seminar “Empirical International Trade”. The aim of this seminar is to introduce the state-of-the-art empirical methods which are used to i) evaluate the determinants of trade flows, and ii) to quantify the effects of international policies, such as the effects of regional trade agreements and currency unions. Within this

course, we will introduce you to the implementation and actual estimation of structural gravity in the computer lab. You then will perform your own policy evaluation and write a seminar thesis about it.

Note: You can take more than one time “AEE II”, as long as it is not the exact same course, which you see by the subtitles of the courses.

We offer or offered the following “AEE II” course:

- Computational General Equilibrium Modelling.
- Bayesian Econometrics.
- Empirical International Trade.
- Empirical Problems of Globalization.
- Applied Time Series Econometrics.
- Empirical Labour Economics.
- Spatial Econometrics.

Please see for further details our announcements on the homepage (<http://www.ewf.uni-bayreuth.de/en/teaching/index.html>).

6.2 Requirements

The course “AEE II” consists of three hours, which can be split as two-hour lectures and a one-hour tutorial or held as a seminar. Part of the course may be held in the PC-lab. The courses will typically be taught in English.

The main text book depends on the specific course content.

Students will have to attend a two-hour exam at the end of the semester or write a term paper. The course is credited with 6 ECTS.

The workload is as follows:

Attendance at the lecture/seminar	30 h
Preparation and follow-up for the lecture/seminar	40 h
Active participation in the tutorial/computer classes	15 h
Preparation and follow-up for the tutorial/computer classes	40 h
Own empirical estimations and annotations	25 h
Exam preparation/term paper	30 h
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Total	180 h

6.3 Target group

Students in the master program “Economics” may account “AEE II” in the specialization module “Modelltheorie” or as an elective course.

Students in the Master program “IWG” may account “AEE II” in a specialization module “Ökonomische Modellbildung und empirische Analyse” or as an elective.

Students in the Master program “P&E” may account “AEE II” as an elective.

Students in the Master program “History&Economics” may account “AEE II” in the module “Specialization”.

In the Master program “Betriebswirtschaftslehre” “AEE II” may be accounted in the basis module B1.

Advanced Bachelor students may account “AEE II” as seminar or an elective course.

All other students may account “AEE II” as an elective course.

7 Advanced Seminar in Empirical Economics

The “Advanced Seminar in Empirical Economics” (“Hauptseminar Empirische Wirtschaftsforschung”) targets Master students and advanced Bachelor students in Economics, Internationale Wirtschaft & Entwicklung, Philosophy & Economics, Gesundheitsökonomik and Internationale Wirtschaft & Governance.

This seminar aims at discussing empirical issues of different economic areas such as international affairs, industrial organization, labour market, innovation economics, development economics, political economy, health economics, educational economics, finance & taxation, migration or environmental and energy economics.

The seminar provides a possibility to critically discuss **empirical** problems and methods. Students may prepare a proposal on topics of their own interest. The proposal, however, should be clearly-defined and related to empirical issues according to the seminar outline. All those interested in writing an own proposal, please contact the chair.

7.1 Requirements

For a successful participation it is required to have basic background knowledge in empirical economics. The course “EWF I” is the absolute minimum background knowledge that is required.

Topics are distributed depending on the level of knowledge since this seminar is open to advanced Bachelor students as well as Master students.

Students, writing their Bachelor/Master/Diploma thesis with another chair, may write their term paper in this seminar on the thesis topic whenever it is concerned with an empirical method or empirical problem.

7.2 Requirements II

The requirements for participation are as follows:

- Active participation.
- Presentation (ca. 20 minutes).
- Moderation of a debate subsequent to the presentation (discussion ca. 10 minutes).
- Term paper (20,000 characters, including spaces).

7.3 Target group & Credits

The seminar is recommendable for students of the following study programs:

- Economics (advanced BA and MA).
- Internationale Wirtschaft und Entwicklung (advanced BA).
- Philosophy and Economics (advanced BA and MA).
- Gesundheitsökonomie (advanced BA and MA).
- Internationale Wirtschaft und Governance (MA).
- Betriebswirtschaftslehre (advanced BA and MA).

Study program	Module	LP/ECTS
Economics (BA)	Seminar	5
Economics (MA)	Spezialisierung Governance oder individueller Schwerpunkt	6
Gesundheitsökonomie (BA)		5
Gesundheitsökonomie (MA)		6
IWE (BA)	Seminar Internationale Wirtschaft Seminar Entwicklungsökonomik	5
IWG (MA)	Seminar Internationale Wirtschaft	6
Betriebswirtschaftslehre (BA)	AVWL	5
Betriebswirtschaftslehre (MA)	Ergänzungsmodulbereich	6

7.4 Organization

The seminar is typically offered each semester and will be announced at the end of each previous semester.

Please see for further details our announcements at the homepage (<http://www.ewf.uni-bayreuth.de/en/teaching/index.html>).

8 Seminar for students writing their final thesis (Bachelor, Master) or dissertation

This seminar aims at providing academic skills on how to write a publishable empirical paper. Moreover, the seminar promotes the exchange of knowledge with other students and research assistants.

Participation is obligatory for all students that write their final thesis (Bachelor/Master) or dissertation with us. The seminar takes place each semester.

The seminar is held by our research assistants and mainly deals with formal requirements on empirical theses. Students are required to present the main findings of their empirical work and will intellectually benefit from asking specific questions on their research.

All those interested may contact Prof. Mario Larch (mario.larch@uni-bayreuth.de).