FAECTOR/ESE Excellence Programme 2022

NOTE: This is a preliminary programme, intended to give students an overview of what participation will look like. While most of the below outlined events have been confirmed, no rights can be derived from the information in this document.

Schedule Summary

- 10 Theoretical lectures from professors
- 4 Guest lectures from companies/experts
- 2/3 Inhouse Days
- 3/4 Workshops/Case studies
- 3 Programming assignments with short corresponding essay outlining conclusions
- 1 Final assignment (essay + programming)

Content and Learning objectives

The FAECTOR/ESE Excellence Programme will take place during blocks three, four and five of the academic year 2021-2022. The programme is intended for bachelor students in Econometrie, Econometrics and Double Bachelor Econometrics/Economics from second year and up, as well as pre-master Econometrics and Management Studies students.

The central theme of the programme is "Econometrics and Climate". After completing this programme, students will be able to participate in basic discussions regarding climate change in an academic or business environment. They should be able to know the basics of climate econometrics models used, both in forecasting and prediction, as well as in (financial) risk management. Furthermore, they will become familiar with basic terminology and concepts used in climate, which allows them to read articles on a basic to intermediate level. Lastly, they will also be able to perform some programming algorithms that are used in the field of climate and smart city logistics.

Apart from the aforementioned goals, the FAECTOR/ESE Excellence Programme also aims to give students the opportunity to develop their softs skills. They will receive peer feedback training and follow one more soft skill workshop. During the programme they will write an essay and present their findings in groups. This will help them develop their soft skills in writing and presenting. Furthermore, we will be incorporating group work into the assignments which will develop their teamwork and cooperation skills.

We start with an introduction into the field of climate, with topics including basic definitions of climate and climate change, generally used climate change models and their relation to econometrics, after which we will aim at deepening the students' understanding of climate by studying one of the more widely used econometric techniques within climate analysis: spatial econometric modelling.

The next block, we move on to risk management. This ranges from natural hazard prediction, to financial impact and policy, to damage assessment. Students will start the block with (guest) lectures and end with more practical applications of the obtained knowledge during a machine-learning programming workshop, given by the Red Cross' damage assessment team.

The final block of this course will focus entirely on Smart Cities and the associated big data models and problems that arise. Students will not only learn how to work with big data and how the models are implemented practically in urban housing, development and public transport, but also receive for example a lecture on the ethics of big data and corresponding privacy concerns.

Students are required to be present at 80% of the sessions and pass the assignments (pass/fail grading) in order to successfully complete the programme.

Programme and hours

Climate Change and Forecasting (30 hrs)

Date	Content
19-1	Theoretical lecture: Introduction to Climate by dr. Alexander Los
26-1	Company lecture: CO2-pricing by the CPB
2-2	Theoretical lecture: General econometric climate models, with a focus on spatial econometrics by prof.dr. Dick van Dijk and dr. Hanno Reuvers
9-2	Theoretical lecture: Spatial econometrics by prof.dr. Dick van Dijk and dr. Hanno Reuvers
16-2	Company visit: Shell (incl. case study)

Assignment 1 (due on 27 Feb): Programming assignment on spatial econometrics, with small essay document outlining conclusions (500-800 words)

Risk Assessment (39 hrs)

Date	Content

28-2	Presentations assignment 1
2-3	Theoretical lecture: introductory lecture by prof.dr. Derk Loorbach
9-3	Guest lecture: Climate policy perspectives by prof.dr. Jan Peter Balkenende
16-3	Theoretical lecture: Applied risk assessment by prof.dr. Chen Zhou
23-3	Theoretical lecture: Applied risk assessment by prof.dr. Chen Zhou
30-3	Company lecture: Climate risk in financial modeling by Deloitte
1-4	Company visit: MiCompany (incl. workshop, TBD)
6-4	Company lecture and programming workshop: Damage assessment by the Red Cross

Assignment 2 (due May 3rd): Programming assignment after workshop Red Cross, with small essay document outlining conclusions (500-800 words)

Smart Cities and Big Data (43 hrs)

Date	Content
2-5	Presentations assignment 2
4-5	Theoretical lecture: introductory lecture by prof. Martin de Jong
11-5	Theoretical lecture: Ethics and Privacy in Big Data by TBD
18-5	Workshop De Kleine Consultant: feedback
25-5	Theoretical lecture and following small debate: Big Data and Smart City Logistics by Somesh Sharma
1-6	Company lecture: Energy trading in extreme weather events by Northpool
8-6	Company visit: RET
15-6	Programming workshop: smart cities by TBD

Final Assignment (due on 28-6): Three essay topics corresponding to the respective blocks, given by professors. Students can then choose their respective topic and implement the (programming) knowledge they have (1800-2000 words).

Total estimated hours: 112