DEPARTMENT OF MANAGEMENT
AARHUS UNIVERSITY

Course Syllabus
Applied Quantitative Methods for Management Research

Course coordinator:	Tünde Cserpes
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Lecturers:	Carsten Bergenholtz, John Thøgersen, and Tünde Cserpes
Work load:	5 ECTS
Administrative assistance:	Lisbeth Widahl, liw@mgmt.au.dk
Office/student hours:	on Fridays between 10:00-12:00 or by appointment
Time:	Tuesdays, 9:00-15:00 in Week 41-49 (except week 42)
Place:	U(2636)-112 (weeks 41, 44-47 and 49); U(2636)-115 (week 43 and 48) - download **AU Find** to your mobile phone to help you locate the building.

Important! We are closely monitoring the COVID-19 situation and will modify course policy according to the guidelines set out by the Danish authorities and university officials.

Course description and objectives

What does it mean when seminar participants or journal referees claim that your paper has an endogeneity problem or no identification strategy? How can you deal with these challenges? With a point of departure in the ideal randomized experiments, this Ph.D. course at the Department of Management introduces a toolbox with various techniques to deal with these questions in quantitative analysis of non-experimental data. We do this from two different perspectives, i.e., structural equation modeling and quasi-experimental design.

This course will introduce participants to state-of-the-art quantitative empirical methods in management with a focus on application and understanding the underlying intuition. We explore topics ranging from regression models to quasi-experimental designs and structural equation models. We address identification, correlation, and causality with a point of departure in recent empirical studies from the broad field of management and marketing. This course will introduce two software packages, Stata and AMOS, which are frequently used among empirical scholars.

Course outcomes

The goal is to provide participants with a foundation for collecting and analyzing datasets in management research and create causal research designs. For students who are not themselves working with quantitative empirics, this course enables them to read, understand, review and comment on quantitative empirical contributions for their thesis,

at conferences, and as reviewers for international journals. The ultimate goal is to spark an interest in quantitative analysis and de-mystify the concepts and skills involved.

Topics
Identification, Causality, Types of research questions, Quality of data, Matching, Differences-in-differences, Instrumental variable regression, Regression discontinuity design, Structural equation modelling, Stata, AMOS.

Prerequisites
Ideally, you have already acquired a basic understanding of probability theory and statistics. Most master level programs in management (including cand.merc.) give you the foundations to participate in this course. We recommend revisiting the textbooks and material from these classes. Moreover, several universities provide online courses in inferential statistics and regression analysis, which also offer an opportunity to revisit these topics.

Course requirements
There are four main requirements to this course:
      1) Pre-course survey
      2) Reading
      3) Attendance and active participation
      4) Final exams

1) Pre-course survey

While our curriculum focuses on intuition and application rather than proof and formal equations, some technical content is necessary. For this reason, we ask course participants to fill out a short quantitative survey before the first class to assess the level of familiarity with statistical concepts.

2) Reading

Reading is the foundation of this course. This course requires you to read both methods books that explain the tenets of econometrics and applied papers, which will sometimes seem abstract and difficult. Your reading assignments will be in the ballpark of 50-100 pages for each class requiring you to spend about 3-4 hours reading and taking notes at home. During the course, we will work towards making this task gradually easier.

Books (buy them prior classes start)

We ask you to buy these books. Both of these are worth adding to your personal library as they are an accessible guide to the essential tools of econometric research.

Joshua D. Angrist and Jörn-Steffen Pischke (2014), *Mastering 'Metrics*. Princeton University Press.

Niels Blunch (2013), *Introduction to Structural Equation Modeling using IBM SPSS Statistics and Amos*, Sage Publishing.

The detailed lecture plan will include additional readings (mostly journal articles) for each session. These materials will be posted on Blackboard.

3) Attendance and active participation

Full and active participation is expected during lectures. We will alternate between lectures and small-group exercises.

What you should do, if you really have to miss a day?
You should keep in mind that to pass the course, it is mandated by the Ph.D. school that you attend all lectures. If it seems like you cannot for some reason, send an e-mail to Tünde and Lisbeth and present your case.

We ask you to complete the following in lieu of attending class:
1. Read all materials for the session
2. Read the slides and try to understand the intuition
3. Complete all assignments and data exercises
4. Ask a fellow participant to share their in-class notes
5. If you completed steps 1-4 and still have clarification questions, reach out to Tünde.

4) Final exam

Each participant submits a written assignment. The assignments will be evaluated in terms of pass or fail. Deadline for submission is **December 15, 2020**. We will post assignments to Blackboard in Week 47.

Availability to course participants

If you have any questions, worries, or constructive feedback, please feel free to contact Tünde. I will be available for meetings during office hours or by appointment if those times conflict with your schedule.

Lecture Plan

To see the detailed lecture plan, reach out to me at tunde.cserpes@mgmt.au.dk.