Intermediate Quantitative Methods (Advanced methodology course – practice-related methods)

Title	Intermediate Quantitative Methods (Advanced methodology course – practice-related methods)
Semester	F2023
Master programme in	Global Studies / Internationale udviklingsstudier / Virksomhedsstudier / Social Entrepreneurship and Management / Virksomhedsledelse / Business Administration and Leadership / Global and Development Studies / Social Entrepreneurship and Management / Virksomhedsledelse / European Master in Global Studies
Type of activity	Course
Teaching language	English
Study regulation	

REGISTRATION AND STUDY ADMINISTRATIVE

Registration	
Number of participants	
ECTS	5
Responsible for the activity	Camilla Jensen (camje@ruc.dk)
Head of study	Margit Neisig (neisig@ruc.dk)
Teachers	
Study administration	ISE Registration & Exams (ise-exams@ruc.dk)
Exam code(s)	U60379

ACADEMIC CONTENT

Overall objective	A practice-oriented methodology course aims to equip students to competently apply a given technique or tool that is frequently used in practice. The course equips students to argue for the applicability and relevance of the technique or tool to the problem, and to apply the technique or tool in work situations.

Detailed description of content	In the first session, we will repeat the fundamentals in running a multiple regression model: equation of a straight line, the method of least squares, and assessment of the fitness of the model. We discuss how single factors can affect the accuracy of the model and the use of dummy variables. In addition to the knowledge of fundamentals, we show situations where models could violate the assumption of linearity, how to transform the variables in such situations and how to deal with common econometric problems of multicollinearity and heteroscedasticity.
	In the second session, we continue studying the multiple regression model but incorporating categorical variables as explanatory factors into our models. We also investigate violations of other aspects of model assumptions (in the first session, we focused on the assumption of linearity), such as normality and independence. Parameter interpretation is less straightforward in some of these models.
	In the third session, we change the assumption in linear regression for the dependent variable. Using a categorical variable instead of a scale variable, we can better test outcome variables from surveys across the social sciences, including the type of variables standard in political science and sociology. Such as, for example, voting for a specific political party or the link between empowerment and climate-related disasters. With logistic regression analysis, we analyze how the probability of these types of outcomes depends on a set of explanatory variables.
	In the fourth session, we focus on factor analyses. Factor analysis explores the options to group or cluster variables. Using this technique can facilitate understanding the structure of data and reduce the number of variables, now working with factor variables. Sometimes we need to measure something that cannot be assessed directly—for example, burnout or lack of motivation and inspiration.
	In the fifth and last session, we will discuss the usage of statistical methods and how they are presented in scientific articles and introduce the technique of multi-level regression. In addition, we will discuss the use of the method in a scientific article. We relax the assumption of homogeneity of equal intercept and slopes among sub-samples in this session.
Course material and Reading list	Main texts (a full reading list including supplementary journal articles and reading instructions will be mailed out to the students prior to the beginning of the course):
	Bolin, Jocelyn H. (2023). Regression Analysis in R - A Comprehensive View for the Social Sciences. CRC Press, Taylor & Francies Group. (Available online at REX/RUB or also in stock at Academic Books.) (190 pages)
	Wooldridge, J. M. (2017). Introductory econometrics: A modern approach. Cengage learning. (Any version or edition of Wooldridge can be used and you can probably find one second-hand quite easily in the Copenhagen area or online). The necessary pages will also be uploaded on Moodle. (70 pages in extract.)
	Kim, Jae-On and Mueller, Charles W. (1978). Introduction to Factor Analysis - What It Is and How To Do It, Sage University Paper, 13, Sage Publications. (Can be downloaded from REX.) (50 pages)
	Kim, Jae-on and Mueller, Charles W. (1978). Factor Analysis - Statistical Methods and Practical Issues, Sage University Paper, 14, Sage Publications. (Can be downloaded from REX.) (20 pages in extract)

Overall plan and expected work effort	The course is a 5 ECTS and has a total of 135 working hours for students. The hours are thought to be divided as follows: course participation: 20 hours (10 times 2 hours); preparation for theoretical sessions: 25 hours (5 times 5 hours); preparation for exercises: 10 hours (5 times 2 hours); mid-term evaluation: 2 hours, homework assignment: 20 hours (5 times 4 hours); exam preparation: 10 hours; assignment: 48 hours.
Format	
Evaluation and feedback	The activity are evaluated regularly regarding the study board evaluation procedure. The activity responsible will be orientated about a potential evaluation of the activity at semesterstart. Se link to the study board evaluation praxis here https://intra.ruc.dk/nc/for-ansatte/organisering/ raadnaevn- og-udvalg/oversigt-over-studienaevn/studienaevn-for-internationale-studier/arbejdet-medkvalitet- i-uddannelserne/
Programme	See Moodle

ASSESSMENT

Overall learning outcomes	At the conclusion of the course, students will be able to: • Explain and evaluate key concepts relating to the given technique or tool, using academically relevant terminology • Argue for the utility of the technique or tool in practice • Master the application of the basic functions of the given technique or tool • Take a critical position in relation to the use of the technique or tool in practice.
Form of examination	Individual written take-home assignment. The character limit of the assignment is: maximum 12,000 characters, including spaces. The character limit includes the cover, table of contents, bibliography, figures and other illustrations, but exclude any appendices. The duration of the take-home assignment is 48 hours and may include weekends and public holidays. Assessment: 7-point grading scale.
Form of Re-examination	Samme som ordinær eksamen / same form as ordinary exam
Type of examination in special cases	
Examination and assessment criteria	Argue for the advantages and disadvantages of the tool you choose to test a research question. Present and critically explain the results of a statistical analysis related to a research question.

Convince the reader the results are valid and reliable based on statistical criteria and discuss limitations to the results.

Discuss alternative techniques that could be used and argue for their pros and cons.

Discuss data quality and what can be improved in future studies within the field of research.

Exam code(s)

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Course days:

Hold: 1

Intermediate Quantitative Methods (BAL, GDS, IPG, VL)

time	08-03-2023 10:15 til 08-03-2023 12:00
location	05.2-032 - teorirum (65)
Teacher	Thorkil Casse (casse@ruc.dk)

Intermediate Quantitative Methods (BAL, GDS, IPG, VL)

time	10-03-2023 14:15 til 10-03-2023 16:00
location	05.2-032 - teorirum (65)
Teacher	Thorkil Casse (casse@ruc.dk)

Intermediate Quantitative Methods (BAL, GDS, IPG, VL)

time	15-03-2023 12:15 til 15-03-2023 14:00
location	05.1-032 - teorirum 05.1 (65)
Teacher	Camilla Jensen (camje@ruc.dk)

Intermediate Quantitative Methods (BAL, GDS, IPG, VL)

time	17-03-2023 14:15 til 17-03-2023 16:00
location	05.2-032 - teorirum (65)
Teacher	Camilla Jensen (camje@ruc.dk)

Intermediate Quantitative Methods (BAL, GDS, IPG, VL)

time	22-03-2023 10:15 til 22-03-2023 12:00
location	05.2-032 - teorirum (65)
Teacher	Thorkil Casse (casse@ruc.dk)

Intermediate Quantitative Methods (BAL, GDS, IPG, VL)

time	24-03-2023 14:15 til 24-03-2023 16:00
location	05.2-032 - teorirum (65)
Teacher	Thorkil Casse (casse@ruc.dk)

Intermediate Quantitative Methods (BAL, GDS, IPG, VL)

time	29-03-2023 10:15 til 29-03-2023 12:00
location	05.2-032 - teorirum (65)
Teacher	Thorkil Casse (casse@ruc.dk)

Intermediate Quantitative Methods (BAL, GDS, IPG, VL)

time	14-04-2023 14:15 til 14-04-2023 16:00
location	05.2-032 - teorirum (65)
Teacher	Camilla Jensen (camje@ruc.dk)

Intermediate Quantitative Methods (BAL, GDS, IPG, VL)

time	19-04-2023 10:15 til 19-04-2023 12:00
location	05.2-032 - teorirum (65)
Teacher	Camilla Jensen (camje@ruc.dk)

Intermediate Quantitative Methods (BAL, GDS, IPG, VL)

time	21-04-2023 14:15 til 21-04-2023 16:00
location	05.2-032 - teorirum (65)
Teacher	Camilla Jensen (camje@ruc.dk)

Intermediate Quantitative Methods (BAL, GDS, IPG, VL)

time	30-05-2023 12:15 til 30-05-2023 14:00
forberedelsesnorm	ikke valgt
forberedelsesnorm D-VIP	ikke valgt
location	03.1-ne01 - auditorie c (50)
Teacher	Thorkil Casse (casse@ruc.dk) Camilla Jensen (camje@ruc.dk)

Intermediate Quantitative Methods – Exam (BAL, GDS, IPG, VL)

time	06-06-2023 10:00 til 08-06-2023 10:00
forberedelsesnorm	ikke valgt
forberedelsesnorm D-VIP	ikke valgt

Intermediate Quantitative Methods – Reexam (BAL, GDS, IPG, VL)

time	21-08-2023 10:00 til 23-08-2023 10:00
forberedelsesnorm	ikke valgt
forberedelsesnorm D-VIP	ikke valgt