Econometrics ST223G

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Department of Statistics

Teaching plan Econometrics (15 ECTS Credits), spring 2020

Course code: ST223G

Course content

The course consists of four course units:

I.   Regression analysis

   a. Regression analysis, examination, 6 ECTS Credits

   b. Compulsory exercise in regression analysis, 1.5 ECTS Credits

II.   Time series analysis

   a. Time series analysis, examination, 6 ECTS Credits

   b. Compulsory exercise in time series analysis, 1.5 ECTS Credits

Course literature

Part I: Regression analysis

- Wooldridge, J.M. (**JMW**) *Introductory Econometrics: A Modern Approach*. Cengage Learning, Boston. Last edition.

   o *Student Solutions Manual* (**SSM**) for odd-numbered problems, available at:
      https://www.cengage.co.uk/books/9781337558860/

- *Exercises in Econometrics* (**EE**), available in Athena.

Part II: Time series analysis

- Wooldridge, J.M. (**JMW**) *Introductory Econometrics: A Modern Approach*. Cengage Learning, Boston. Last edition.

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o *Student Solutions Manual* (**SSM**) for odd-numbered problems, available at:
https://www.cengage.co.uk/books/9781337558860/

- Montgomery, D.C., Jennings, C.L. and Kulachi, M. (**MJK**) *Introduction to Time Series Analysis and Forecasting*. John Wiley, New Jersey. Last edition.

- *Exercises in Time Series Analysis* (**ETSA**), available in Athena.

Recommended online resources

- Heiss, F. *Using R for Introductory Econometrics* (6th ed.), available at:
http://www.urfie.net/read.html

Lectures

Note! JMW Math Refresher A-C contains the necessary background material in mathematics, probability, and statistics for this course, which you should know from your previous courses. However, if you feel that you need to refresh this knowledge, it is recommended that you read this material on your own.

Lecture	Content	Chapters*
	Part I: Regression analysis	
Intro + F1	Course information + The nature of econometrics and economic data	JMW:1
F2	The simple regression model	JMW:2
F3	The simple regression model	JMW:2
F4	Multiple regression analysis: Estimation	JMW:3 (excl. 3-7e)
F5	Multiple regression analysis: Estimation + Inference	JMW:3-4 (excl. 3-7e, 4-7)
F6	Multiple regression analysis: Inference + OLS asymptotics	JMW:4-5 (excl. 4-7)
F7	Multiple regression analysis: Further issues	JMW:6
F8	Multiple regression analysis with qualitative information	JMW:7 (excl. 7-6a)
F9	Heteroskedasticity	JMW:8 (excl. 8-4d)
F10	More on specification and data issues	JMW:9 (excl. 9-2c)
F11	Instrumental variables estimation and two-stage least squares	JMW:15 (excl. 15-7, 15-8)
F12	Simultaneous equations models	JMW:16 (excl. 16-6)
F13	Limited dependent variable models and sample selection corrections	JMW:17
F14	Limited dependent variable models and sample selection corrections	JMW:17
	Part II: Time series analysis	

F15	Introduction Part II + Basic regression analysis with time series data JMW:10	
F16	Further issues in using OLS with time series data	JMW:11
F17	Serial correlation and heteroscedasticity in time series regression	JMW:12
F18	Advanced times series topics	JMW:18
F19	Introduction to forecasting + Statistics background for forecasting + Regression analysis and forecasting	MJK:1-2, 3.1, 3.5.1, 3.6, 3.8.1, 3.9
F20	Exponential smoothing methods	MJK:4
F21	Exponential smoothing methods	MJK:4
F22	Autoregressive Integrated Moving Average (ARIMA) Models	MJK:5
F23	Autoregressive Integrated Moving Average (ARIMA) Models	MJK:5
F24	Autoregressive Integrated Moving Average (ARIMA) Models + ARCH and GARCH models, practical implementation	MJK:5, 7.3, 7.10
F25	Pooling cross sections across time: Simple panel data methods + Advanced panel data methods	JMW:13, 14

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[*] Excluding appendices.

Exercises

It is recommended that you for each chapter in JMW work through as many *Going Further Questions* and end-of-chapter odd-numbered *Problems* and *Computer Exercises* as possible. Answers to all *Going Further Questions* are given in JMW, while answers to the end-of-chapter odd-numbered *Problems* and *Computer Exercises* are given in the SSM.

Group exercises

Exercise	Text book (JMW/MJK) or Compendium (EE/ETSA)
	Part I: Regression analysis
Ö1	JMW: 2.2, 2.3, 2.4, 2.5, 2.7, 2.8, 2.10, 2.12
Ö2	JMW: 3.1, 3.2, 3.3, 3.4, 3.5. EE: 4, 6, 10
Ö3	JMW: 3.6, 3.11, 3.15, 3.16, 4.4, 4.5, 4.6, 4.7, 4.8, 5.1, 5.4, 5.5. EE: 5, 9, 11, 12
Ö4	JMW: 6.3, 6.4, 6.6, 6.7, 7.1, 7.2, 7.5, 7.8, 7.11. EE: 18, 19, 20, 21, 44
Ö5	JMW: 8.1, 8.2, 8.5, 8.8, 9.1, 9.4, 9.5. EE: 28, 29
Ö6	JMW: 15.2, 15.3, 15.6, 15.7, 16.1, 16.2, 16.6
Ö7	JMW: 17.1, 17.2, 17.4, 17.5, 17.6, 17.7
	Part II: Time series analysis
Ö8	JMW: 10.2, 10.3, 10.6, 10.7, 11.1, 11.3, 11.4, 11.5, 12.1, 12.2, 12.3, 12.6, 12.7
Ö9	JMW: 18.2, 18.5, 18.7, 18.8, 18.9, MJK: 1.2, 1.3
Ö10	ETSA: 3.1-5
Ö11	ETSA: 4.1-5

Ö12   JMW: 13.1, 13.4, 13.5, 13.7, 14.2, 14.3, 14.7. ETSA: 4.6-13

Computer exercises

Exercise	Text book (JMW/MJK)
	Part I: Regression analysis
D1	JMW: C2.2, C2.3, C2.4, C2.5, C2.10, C3.2, C3.3, C3.5, C3.6, C3.10
D2	JMW: C4.1, C4.3, C4.12, C5.1, C5.2, C6.2, C6.4, C6.9, C6.12, C7.1, C7.4, C7.6, C7.14, C7.15, C8.1, C8.12
D3	C9.1, C9.3, C9.5, C9.9, C9.13, C15.1, C15.3, C15.10 + Work with Assignment I
D4	C16.1, C16.2, C16.3, C16.7, C16.9, C17.1, C17.3, C17.5 + Work with Assignment I
	Part II: Time series analysis
D5	JMW: C10.7, C10.9, C11.1, C11.6, C11.11, C12.7, C12.9, C18.3, C18.7, C18.9, C18.10
D6	MJK: 2.10-15, 2.22-23
D7	MJK: 4.12-13, 4.16-17, 4.27-28
D8	MJK: 5.13-15 + Work with Assignment II

Course schedule

See the webpage of the course. Note! F = Lecture ("Föreläsning"), Ö = Exercises ("Övning"), D = Computer exercises ("Dataövning").

Examination

The examination consists of two written exams and two compulsory hand-in assignments:

Written exams

1. Regression analysis, 6 ECTS Credits (Examination code: 31ET)

2. Time series analysis, 6 ECTS Credits (Examination code: 41ET)

Examination dates: See the webpage of the course.

Hand-in assignments

1. Compulsory exercise in regression analysis, 1.5 ECTS Credits (Examination code: 32EI)

2. Compulsory exercise in time series analysis, 1.5 ECTS Credits (Examination code: 42EI)

The topics of the hand-in assignments will be announced through Athena.

The assignments are done as a group project (a group consists of 1-3 students) and are presented as a written report. We encourage discussions among students between groups during the work on the assignment, but each group must finally be able to answer for their own handed-in written report.

Deadline for handing in assignment 1: 23 April 2020.

Deadline for handing in assignment 2: 29 May 2020.

Grading criteria

Written exams

At each written examination, a maximum total credit of 100 points will be awarded. Grades are given according to the following seven-point rating scale:

Grade	Points on the written exam
A	90-100
B	80-89
C	70-79
D	60-69
E	50-59
Fx	40-49
F	0-39

To pass the exam a minimum grade of E is required. Failing grades are F and Fx. When obtaining a failing grade F or Fx in the written examination, we will not give extra exercises or extra assignments to obtaining a passing grade.

Hand-in assignments

The compulsory hand-in assignments are graded as Pass (G) or Fail (U). If a compulsory assignment is graded as Fail (U), the student will have only one chance to re-submit the assignment and this has to be done within a week.

Final grade for the complete course Econometrics (15 ECTS Credits)

To pass the entire course, a minimum grade of E for each of the two written exams and a pass (G) grade for each of the two hand-in assignments are required. The final grade of the entire course is given according to the following table:

Final grade	Grades on the written exams (independent of order)
A	A + A, A + B
B	A + C, B + B, B + C
C	A + D, A + E, B + D, B + E, C + C, C + D
D	C + E, D + D, D + E
E	E + E

Teachers and communication

Course coordinator and examiner, teaching assistant

Jörgen Säve-Söderbergh, room B710

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Reception hours: Mondays 13:00-14:00

Course information

Department of Statistics: https://www.statistics.su.se/

Course webpage: https://www.statistics.su.se/english/education/courses-programmes/undergraduatelevel/econometrics-15-credits-1.148327