



COURSE: Advanced Econometrics

DEGREE: Economics

YEAR: 2013

TERM: 2nd

**WEEKLY PLANNING**

WEEK	SESSION	DESCRIPTION	GROUPS		Special room for session (computer classroom, audio-visual classroom...)	WEEKLY PROGRAMMING FOR STUDENT		
			LECTURES	SEMINAR		DESCRIPTION	CLASS HOURS	HOMEWORK HOURS Max. 7 H
1	1	<u>Causal relations and partial effects</u> : Conditional expectations, linear projections and partial effects. Elasticities and semi-elasticities. Linear versus nonlinear models.	X			Read Wooldridge Chapt. 1 & 2.	1,5	7H
1	2	<u>Exercises</u> : Properties on conditional expectations and linear projections. Interpreting partial effects in linear and nonlinear models. Average partial effects.		X		Hand in Homework 1.	1,5	
2	3	<u>Basic Asymptotic Theory 1</u> : Convergence in probability and in distribution. Law of Large Numbers and Central Limit Theorems.	X			Read Wooldridge sections 3.1, 3.2, 3.3. and 3.4. and Hayashi section 2.1.	1,5	7H
2	4	<u>Exercises</u> : Applications of Slutsky's and Continuous Mapping theorems. Consistency and asymptotic distribution of sample moments.		X		Hand in Homework 2.	1,5	
3	5	<u>Basic Asymptotic Theory 2</u> : The analog principle. CAN estimators. The delta Method.	X			Read Wooldridge section 3.5.	1,5	7H
3	6	<u>Exercises</u> : Asymptotic distribution of functions of sample means. Applications of the delta method.		X		Hand in Homework 3.	1,5	
4	7	<u>Least Squares in the single-equation linear model 1</u> : OLS, GLS and Quasi-maximum likelihood. Consistency and asymptotic normality under classical and non-standard conditions.	X			Read: Wooldridge sections 4.1, 4.2.1, 4.2.2. Hayashi section 2.3.	1,5	7H
4	8	<u>Exercises</u> : Asymptotic efficiency of GLS and ML. Trending regressors.		X		Hand in Homework 4.	1,5	
5	9	<u>Least Squares in the single-equation linear model 2</u> : Partitioned regression. Omitted variables, proxy variables y measurement errors.				Read Wooldridge 4.3 and 4.4.		
5	10	<u>Exercises</u> : Asymptotic bias due to omitted variables and measurement errors.				Hand in Homework 5.		
6	11	<u>Least Squares in the single-equation linear model 3</u> . Consistent estimation of asymptotic variance and covariance matrix under standard and non-standard conditions. Confidence intervals.	X			Read Wooldridge sections 4.3 and 4.4. Hayashi section 2.5.	1,5	7H
6	12	<u>Exercises</u> : Residual variance estimators. Asymptotic inferences under innovations autocorrelation of unknown form.				Hand in Homework 6.		

7	13	Testing parameter restrictions in the single-equation model 1: Linear restrictions and restricted least squares. Consistency, asymptotic power, local alternatives and efficiency. Wald tests.	X			Read Hayashi section 2.4. Wooldridge 4.2.3	1,5	7H
7	14	Exercises: Derivation of asymptotic distribution of restricted least squares. Derivation of limiting distribution of Wald test under local alternatives.		X		Hand in Homework 7.	1,5	
8	15	Testing parameter restrictions in the single-equation model 2: Lagrange and Likelihood Ratio tests. Tests for homostedasticity and lack of autocorrelation.	X			Read Wooldridge 3.5.2, 4.2.4 and 6.2.4. Hayashi 2.4, 2.6 and 3.7.	1,5	7H
8	16	Exercises: Comparison between tests.		X		Hand in Homework 8.	1,5	
9	17	<b>MID TERM EXAM</b>	X			<b>MID TERM EXAM</b>	1,5	7H
9	18	Instrumental variables estimation in the single-equation linear model 1: Identification and instruments. Order and rank conditions with multiple instruments. Consistency and asymptotic normality of 2SLS.		X		Read Hayashi 3.1, 3.2 and 3.3. Wooldridge 5.1, 5.2.1 and 5.2.2.	1,5	
10	19	Exercises: Asymptotic distribution of 2SLS under nonstandard conditions. Asymptotic variance estimator.		X		Hand in Homework 9.	1,5	7H
10	20	Instrumental variables estimation in the single-equation linear model 2: Inference with 2SLS. Poor instruments and efficiency issues. Tests for endogeneity and overidentifying restrictions.	X			Read Wooldridge 5.2.3, 5.2.4, 5.2.5 and 5.2.6.	1,5	
11	21	Exercises: Asymptotic efficiency of 2SLS. Implementation of endogeneity and overidentifying restriction tests.		X		Hand in Homework 10.	1,5	7H
11	22	Systems of linear equations 1: OLS and GLS in SUR models. Feasible GLS. Testing cross-equation restrictions.	X			Read Wooldridge 7.	1,5	
12	23	Exercises: Efficiency in SUR models. Inference in SUR models.		X		Hand in Homework 11.	1,5	7H
12	24	Systems of linear equations 2: Identification in simultaneous equation models under exclusion and general restrictions. 2SLS versus 3SLS.	X			Read Wooldridge 8, 9.1, 9.2., 9.4 and 9.5; Hayashi 4.1, 4.2, 4.3, 4.4 and 4.5.	1,5	
13	25	Exercises: Asymptotic distribution of 3SLS. Tests on linear restrictions.		X		Hand in Homework 12.	1,5	7H
13	27	Extremum estimators 1: Conditional maximum likelihood, non-linear least squares, GMM. Identification. Asymptotic properties of extremum estimators.	X			Read Wooldridge 12.1, 12.2, 12.3. Hayashi 7.1, 7.2 and 7.3.	1,5	
14	28	Exercises: Examples in limited dependent variable models. Logit, Tobit and Counts.		X		Hand in Homework 13.	1,5	7H
14	28	Extremum estimators 2: Numerical optimization algorithms.	X			Hayashi 7.5.	1,5	
<b>SUBTOTAL</b>							<b>42</b>	<b>+ 68 = 110</b>
15		Tutorials, handing in, etc						
16-18		Assessment					3	
<b>TOTAL</b>							<b>150</b>	