TENTATIVE COURSE SCHEDULE

Class/ Lecture	Day	Date	Topic	References	
1	M	Jan. 11	Intro to course		
2	W	Jan. 13	Measure theoretic foundations of probability theory	Amemiya, Sec. 3.1; Rao, Sec. 2a, Appendix 2A	
	M	Jan. 18	MLK Day. No class		
3	W.	Jan. 20	Prob. density functions, the Radon-Nikodym theorem, convergence of sequences of random variables	Amemiya, Section 3.2; Serfling, Section 1.2.1-1.2.4; 1.3.1-1.3.5; Rao, pp. 92-94, Section 2c.2; Appendix 2B	
4	M	Jan. 25	Relations among modes of convergence	Amemiya, Sec. 3.2 Serfling, Sec. 1.3.1-1.3.5 Rao, pp. 122-123; Sec. 2c.2	
5	W	Jan. 27	Characteristic functions and laws of large numbers	Amemiya, Sec. 3.3 Serfling, Sec/.1.1.7, 1.8 Rao, Sec. 2b.4; 2c.3; pp. 117-118; p. 124	
6	M	Feb. 1	A law of large numbers for time series The accuracy of laws of large numbers The Lindeberg-Lévy central limit theorem	Amemiya, pp. 91-92 Bosq, Theorem 1.2 Serfling, p. 28, p. 35, p. 75; *Ann. of Math. Stat.* (1970) Rao, pp. 126-127	
7	W	Feb. 3	Central limit theorems The accuracy of central limit theorems	Amemiya, pp. 91-93 Bosq, Theorem 1.7 Rao, Sec. 2c.5 Serfling, Sec. 1.9.1, 1.9.2, 1.9.5	
8	M	Feb. 8	Definition of extremum estimators; uniform convergence; measurability of extreme\um estimators	Notes of Canvas Amemiya, p. 106 Kolmogorov and Fomin, p. 285	
9	W	Feb. 10	Consistency of extremum estimators	Amemiya, Sec. 4.1 Newey and McFadden: Sec. 2 intro; Sec. 2.1; Sec. 2.6 Notes on Canvas	
10	M	Feb. 15	Midterm examination		
11/10	W	Feb. 17	Examples of consistency and inconsistency of extremum estimators Asymptotic normality of extremum estimators	Amemiya: Examples 4.1.1-4.1.3, 4.2.2; Sec. 4.1.2 Neyman and Scott (1948)	
12/11	M	Feb. 22	Proof of asymptotic normality theorem Uniform law of large numbers	Amemiya: Sec. 4.1.2, Theorem 4.2.1 Newey and McFadden: Sec. 2.3, Sec. 3	

13/12	W	Feb. 24	Maximum likelihood estimation	Amemiya: Sec. 4.2 Newey and McFadden: Sec. 2.2.1, 2.4, 3.2, 4.2, 5.1 Rao: Sec. 1e.6	
14/13	M	Mar. 1	Estimating the covariance matrix in maximum likelihood; Conditioning on covariates; Hypothesis tests based on maximum likelihood estimates;	Amemiya: Sec. 4.5.1 Newey and McFadden: Sec. 4.2, 9.2	
15/14	W	Mar. 3	Tests of composite hypotheses based on MLE;	Amemiya: Sec. 1.4.1, 1.5.2, 4.5.1 Newey and McFadden, Sec. 9.2	
16/15	M	Mar. 8	Power of tests Generalized method of moments	Amemiya: Sec. 4.5.1 DasGupta: Sec. 21.4 Newey and McFadden, Sec. 2.2.3, 2.5, 3.3, 4.3, 6.1 for GMM; Sec. 9.2 for power Hansen Econometrics Manuscript: Ch. 13	
17/16	W	Mar. 10	Test of overidentifying restrictions in GMM Asymptotic normality when $Q_n(Y,\theta)$ has only one derivative with respect to θ	Newey and McFadden, Sec. 9.5 for test of overidentifying restrictions; Sec. 7.1 for one derivative. Hansen: Econometrics Manuscript, Sec. 13.6	
	M	Mar. 15	Final examination		