COURSE OUTLINE

I. Introduction and Statistics and Probability Review

Ch. 1: The Nature of Econometrics & Economic Data Appendix A.1, B.1 –B.4, C.1-C.3	*Key concepts: Conditional Probability, Nature of Regression, Econometric Methodology, Causation*

II. Basic Theory of the Classical Linear Regression Model & OLS

Ch. 2: The Simple Regression Model: Estimation Appendix A.5	*Key concepts : intro to STATA, review ordinary least squares (OLS), derivation of OLS estimators via normal equations, derivation of standard error, SST, SSE, SSR, R-squared*

III. Econometric Analysis of Cross-Sectional Data

Ch. 3. Multiple Regression Model: Estimation Ch. 4. Multiple Regression Model: Inference Appendix C.5-C.6 Ch. 5. Multiple Regression Model: OLS Asymptotics Ch. 6. Multiple Regression Model: Further Issues Appendix 1.4 Ch. 7. Multiple Regression Model: Dummy Variables Ch. 8. Heteroskedasticity	*Key concepts : t-tests, confidence intervals, hypothesis testing, F-tests and F distribution, Adjusted R-squared, multicollinearity, variance inflation factors, marginal F tests* *scaling, interaction effects, elasticity, log-linear, semi-log and polynomial models, program evaluation, treatment group, changes in level and slope, dummy interactions, White's test, robust standard errors, GLS*

Midterm Exam March 22

IV. The Nature & Causes of Bias

Ch. 9. Specification & Data Problems	*Key concepts: bias, consistency and efficiency, types of specification errors*

V. Basic Theory of Simultaneous Equation Models & 2SLS

15. Instrumental Variables Estimation 16. Simultaneous Equations	*Key concepts: simultaneity bias, omitted variable bias, error-in-variables, structural equation, reduced-form equation, identification, instruments, over-identifying restrictions, Instrumental variables regression, Two-Staged Least Squares (2SLS)*

VI. Econometric Analysis of Time-Series Data

Ch. 10. Basic Regression Analysis with Time Series Data Ch. 11. Further Issues with Time Series Data Ch. 12. Serial Correlation and Heteroskedasticity	*Key concepts: Durbin-Watson test, seasonal effects , time trends, autoregression, Cochrane-Orcutt correction, Prais-Winsten estimation, first-difference models, spurious regression, non-stationarity, unit root tests***

VII. Econometric Analysis of Panel Data

Ch. 13. Simple Panel Data Methods Ch. 14. Advanced Panel Data Methods	*Key concepts: natural experiments, unobserved heterogeneity, fixed effects models, random effects models, first-difference models*

VIII. Models with Limited Dependent Variables

Ch. 17. Limited Dependent Variable Models and Sample Selection Corrections	*Key concepts: linear probability model, logistic regression model, truncated and censored regression, sample selection bias, Tobit models** , Heckman correction***

Final In-class Exam May 13
Final Presentation May 16 @ 11:30-2:30