

**Economics 580****Economic and Social Measurement**

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There will be frequent problem sets which count for 60% of the final grade and one midterm which counts for 20%. There will be a final term paper assignment which counts for 20%. This paper will review a measurement paper of the student's choice. The term paper could be written as if it were lecture notes to the class, explaining what is important in the paper. The paper will be graded on whether it presents the main ideas in the paper in an analytically sound manner and on its use of English. Ideally, PhD students could add some analytical extensions to the existing analysis. Lecture notes on each topic are available at Diewert's School website under Courses: Economics 580. However, some chapters may be revised. Please note that there are 3 Mathematics for Economists chapters posted as well and it is expected that students know the material in these chapters.

All economic models work with aggregated data (and if you end up doing applied economic research, you will eventually have to aggregate some data). The course covers the fundamentals of aggregation and index number theory. The material will be useful if you end up working with an economic research firm or a government department that does some economic research. The course will be particularly useful if you decide that you would like to work with a national or international agency that uses economic statistics (like your national statistical agency or central bank, the World Bank, the IMF, the Asian Development Agency, Eurostat or the OECD).

**Mathematics for Economists****Chapter 1: Calculus****Chapter 2: Matrix Algebra****Chapter 3: Unconstrained Maximization****0. Inequalities****1. Early Approaches to Index number Theory****2. Functional Equations****3. The Axiomatic Approach to Bilateral Index Number Theory****4. The Theory of the Cost of Living Index: The Single Consumer Case****5. The Theory of the Cost of Living Index: The Many Consumer Case****6. Problems with the Cost of Living Index****7. The Use of Annual Weights in a Monthly Index****8. Fixed Base Versus Chained Indexes****9. Two Stage Aggregation and Homogeneous Weak Separability****10. Multilateral Index Number Theory**

**11. Elementary Indexes****12. The Treatment of Owner Occupied Housing and Other Durables in a Consumer Price Index****13. The Economic Approach to the Producer Price Index****14. PPI Index Number Computations Using an Artificial Data Set****15. Lowe Indexes and the Practical Construction of a CPI****16. The Treatment of Seasonal Commodities****17. Scanner Data and Rolling Year Methods for Constructing Indexes****18. An Empirical Illustration of Index Construction using Israeli Data on Vegetables****19. Index Number Theory: Past Progress and Problems for the Future****20. The Treatment of Quality Change and Hedonic Regressions****21. Methods for Constructing Property Price Indexes****22. The Measurement of Financial Services**