Economics 206 (2nd half)
University of California, Riverside
Department of Economics
Fall 1998

Professor   Tae-Hwy Lee, Phone: 787-5037, x1509, Email: taelee@mail.ucr.edu
  Lecture: TR 3:40 - 5:00 pm, HH 205B
  Office Hours: TR 2-3 pm or by appointment, Office: HH 209B

TA   Subodh Kumar, Email: skumar@mail.ucr.edu

Course Outline   The second half of this course is Matrix Algebra, that will be useful in economics, especially in econometrics. You are expected to have a thorough understanding of topics covered in class. This includes an understanding of their meaning and proofs, an ability to prove corollaries and extensions, an ability to apply the theorems to numerical problems, and an ability to exposit your understanding clearly and compactly in writing. The following is the topics to be covered in class.

1   Definitions of Matrices and Operators
2   Basic Properties
3   Vector Spaces, Linear Dependence, Basis
4   Row Reduction
5   Rank
6   Inversion
7   Determinants, Cofactors, and Traces
8   Linear Equation Systems
9   Eigenvalues and Eigenvectors
10   Diagonalization, Triangularization, Jordan Canonical Form
11   Quadratic Forms and Definiteness
12   Kronecker Products and Stacking Operator
13   Matrix Norms
14   Matrix Power and Matrix Exponential
15   Differentiating Matrix Expressions
16   Taylor Series, (Constrained) Optimization, Change of Variables

References

- Greene, William (1997), *Econometric Analysis,* 3 ed., Prentice Hall, Chapter 2 (pp. 6-61)

- Strang, Gilbert (1980), *Linear Algebra and Its Applications*, 2ed., Academic Press.

- Simon, Carl and Lawrence Blume (1994), *Mathematics for Economists,* Norton, Chapters 6, 7, 8, 9, 10, 11, 16, 23, 26, 27

- Johnston, Jack and John DiNardo (1997), *Econometric Methods*, 4 ed., McGraw Hill, Appendix A (pp. 455-484)

- Hamilton, James D. (1994), *Time Series Analysis*, Princeton University Press, Appendix A.4 (pp. 721-739)

Exams and Grading   There will be weekly assignments (10%) and an exam (40%) on December 5, Saturday, 9:00 am - 12:00 noon at HH205B. No late homework.