4. COURSE OBJECTIVES and EXPECTATIONS To introduce the widely used method of regression analysis, including the mathematical and statistical theory. To demonstrate the breadth of the scope of regression methodology applications, real datasets from various fields will be used as examples and in the exercises. This will involve use of statistical software in the lab to provide experience in drawing conclusions from calculated results. A substantial part of this course will involve a research project on the analysis of a large and realistic dataset. 5. CALENDAR DESCRIPTION Theory and application of regression analysis, including residual analysis, diagnostics, transformations, model selection and checking, weighted least squares, and nonlinear models. Additional topics may include inverse, robust, ridge, and logistic regression. [3-1-0] Prerequisite: STAT 230 and MATH 221. 8. COURSE SYLLABUS & WEEKLY SCHEDULE Weeks 1-3 Sept 6– 23: Chapters 1 & 2 Introduction and Simple Linear Regression Weeks 4-6 Sept 26 – Oct 14: Chapters 3 & 4 Review of Matrix Algebra and Multiple Linear Regression. Skip sections 3.3, 3.4 and 3.5. Weeks 7-9 Oct 17 – Nov 4: Chapters 5 & 6 Model Specification and Checking Weeks 10-11 Nov 7 – 18: Chapter 7 Model Selection Week 12 Nov 21 – 25: Chapter 9 Nonlinear Regression Week 13 Nov 28 – Dec 2: Research Project Presentations