

Prerequisite MATH (208)322 or consent of the instructor

Course Descriptions :

Rigorous treatment of decision theory and classical statistics. Concepts of loss function, risk, Bayes' procedures, completeness, admissibility, general theory of testing and estimation. Comparison of experiments, sequential and non-parametric methods.

Course Contents

No. of Lecture Hours

1. Rigorous treatment of decision theory	9
- The role of statistics in scientific inquiry	
- The collection and analysis of data	
- Population and sample	
- Quantitative modelling and decision making	
- Decision theory and statistical method	
2. Rigorous treatment of classical statistics	18
- Sample space, events and the basic law of probability	
- General rules of probability	
- Bayes' theorem	
- General principle of statistical inference	
- Chi-square, t and F random variables	
- Correlation and regression	
- Multiple linear regression	
- Least squares	
3. Bayes' procedure	12
- Bayesian methods	
- Loss function	
- Risk function	
- Minimax procedure and minimax estimate	
- Bayes' estimate	
- Bayesian risk function	
- Intervals and tests	
4. Completeness and admissibility	6
- Completeness	
- Admissibility	

Total 45