Outline of some crucial courses in Masters Program of Tanmoy Das at FSU

EIN 5930 - Data Mining AND Techniques (3)

Instructs in appropriate methodology for processing and analyzing data, Instructs in finding analytical models and algorithms that would reveal internal structure and patterns of the data

STA 5207 Applied Regression Methods

Course Objectives: This course provides an introduction to the basic principles of regression. Upon successful completion, a student will be able to confidently carry out a regression study using the SAS system.
Prerequisite: One of STA 2122, 2171, 3032, 4322, 5126, 5354 or QMB 3200
Topics
• Estimation
• Inference, hypothesis testing
• Diagnostics, outliers, leverage and influential observations
• Collinearity
• Generalized least squares, weighted least squares, robust regression
• Transformation, Variable Selection
• Shrinkage Methods, Principal Component Regression

STA 5106 Computational Methods in Statistics I

Course Objectives: To gain an understanding of the techniques and ideas used in implementing mathematical/ statistical formulations on computers, with a focus on common statistical approaches. Students will obtain practice in using Python.
Prerequisite: basic probability and statistics, linear algebra, and advanced calculus.
Topics
• Linear Methods for Regression Analysis
• Principal Component Analysis
• Nonlinear Methods for Maximum Likelihood Estimation
• Elementary Pattern Recognition
• Simulation of Random Variables
• Monte-Carlo Methods for Integration
• Dynamic Programming
• Spline Functions

ESI 5525 - Modeling and Analysis of Manufacturing and Industrial Systems (3)

Prerequisite: ESI 5412, ESI 5408, ESI 4523, ESI 3321C, EIN 4333.

Modeling and analysis of material-flow systems. Flow-shop and job-shop scheduling. Material handling system analysis. Mathematical and simulation modeling for general manufacturing and industrial systems

ESI 5408 - Applied Optimization (3)

Prerequisite: ESI 3312.

Optimization topics relevant to industrial operations and systems. Emphasis on basic modeling assumptions and procedure implementation. Topics shall include linear programming, nonlinear programming, discrete optimization and large-scale optimization software. Design exercises. Please note: students enrolled through FAMU should register for ESI 5412, while students enrolled in FSU should register for ESI 5408.

ESI 5247 - Engineering Experiments (3)

Prerequisite: EIN 5417, EGN 3443.

Introduction to designing experiments and analyzing their results. Intended for engineers and scientists who perform experiments or serve as advisors to experimentation in industrial settings. Students must understand basic statistical concepts. A statistical approach to designing and analyzing experiments is provided as a means to efficiently study and comprehend the underlying process being evaluated. Insight gained leads to improved product performance and quality.

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