

**STAT 7100**  
**Discrete Data Analysis**

**Course Outline**

1. Review of basic mathematical statistics
  - (a) Probability generating functions
  - (b) Moments and cumulants
  - (c) Sum of random variables
  - (d) Estimation methods
  - (e) Tests of fit
2. Inference of discrete distributions
3. Contingency tables
  - (a) Fisher's exact test
  - (b) Yates' continuity correction
  - (c) Matched samples (McNemar test)
  - (d) Gart's test
  - (e) Cochran's method
  - (f)  $r \times c$  tables, partition & combining
  - (g) Multi-dimensional tables
  - (h) Measure of association
4. Likelihood ratio criterion
5. Log-linear model

**MARKING SCHEME:**

Assignments	50 marks
Final Examination	50 marks

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**OFFICE HOURS:** Monday – Friday 8:00 - 4:30

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## **REFERENCES :**

- [1] Agresti, A. "An Introduction to Categorical Data Analysis", John Wiley & Sons, Inc.
- [2] Bishop, Y. M. M., Fienberg, S. E. and Holland, P. W. " Discrete Multivariate Data Analysis ", MIT Press
- [3] Everitt, B. S. " The Analysis of Contingency Tables ", Chapman & Hall
- [4] Fienberg, S. E. " The Analysis of Cross-classified Categorical Data ", MIT Press
- [5] Johnson, N. L. and Kotz, S. " Distributions in Statistics -- Discrete Distributions ", Houghton Mifflin Co.
- [6] Simonoff, J. S. "Analyzing Categorical Data", Springer.