

# Math 362: Mathematical Statistics II

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# Chapter 10. Goodness-of-fit Tests

## § 10.1 Introduction

## § 10.2 The Multinomial Distribution

## § 10.3 Goodness-of-Fit Tests: All Parameters Known

## § 10.4 Goodness-of-Fit Tests: Parameters Unknown

## § 10.5 Contingency Tables

# Plan

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(Karl Pearson)

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3. He has been credited with establishing the discipline of mathematical statistics
4. Method of moments; p-Value; Chi-square test; Foundations of statistical hypothesis testing theory; principle component analysis ...



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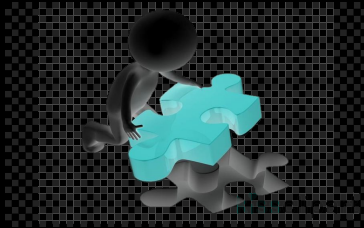
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## Pearson's chi-squared test in one shot



$$\chi^2 = \sum \frac{(\text{Observed} - \text{Expected})^2}{\text{Expected}} \sim \text{Chi Square of } df$$

$df$  = numer of classes – number of estimated parameters – 1

All expected  $\geq 5$