

Math 362: Mathematical Statistics II

Le Chen

le.chen@emory.edu

Emory University
Atlanta, GA

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Chapter 6. Hypothesis Testing

§ 6.1 Introduction

§ 6.2 The Decision Rule

§ 6.3 Testing Binomial Data – $H_0 : p = p_0$

§ 6.4 Type I and Type II Errors

§ 6.5 A Notion of Optimality: The Generalized Likelihood Ratio

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Instead of numerical estimates of parameters, in the form of either single points or confidence intervals, we want to make a choice between two conflicting theories, or **hypothesis**:

1. H_0 : the null hypothesis

v.s.

2. H_1 : the alternative hypothesis

Comments: Hypothesis testing and confidence intervals are dual concepts to each other:

- ▶ One can be obtained from the other.
- ▶ However, it is often difficult to specify μ_0 to the null hypothesis.