

# Assignment 12

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June 6, 2022

# Papoulis chap 8 Exercise 8.10

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# Problem

**8-10** Among 4000 newborns, 2080 are male. Find the 0.99 confidence interval of the probability  $p = P\{male\}$

# Solution

With  $\bar{x} = \frac{2080}{4000} = 0.52$ ,  $n=4000$  and  $z_u \approx 2.326$ .

$$P_{1,2} \approx \bar{x} \pm z_u \sqrt{\frac{\bar{x}(1 - \bar{x})}{n}} = .52 \pm 0.18 \quad (1)$$

Hence,  $.502 < p < .538$

The 0.99 confidence interval of probability  $p = P\{male\}$  lies between 0.502 and 0.538

# CODES

## Python

Download python code from - Python

## Beamer

Download Beamer code from - Beamer