



The UNIVERSITY of NORTH CAROLINA
at CHAPEL HILL

STOR 155 Introductory Statistics

Lecture 18: Inference for a single proportion

Section 8.1

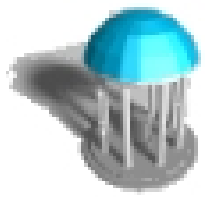


Normal Approximation for Counts and Proportions

- Let $X \sim B(n, p)$ and $\hat{p} = X / n$.
- If n is large, then

\hat{p} is approx. $N(p, \sqrt{p(1-p)/n})$.

- Rule of Thumb: $np \geq 10$, $n(1 - p) \geq 10$.



Confidence Interval for p

- Expression: $[\hat{p} - m , \hat{p} + m]$

where the margin of error $m = z^* \sqrt{\hat{p}(1 - \hat{p})/n}$

- Assumption: n is large
- Confidence level C determines z^*