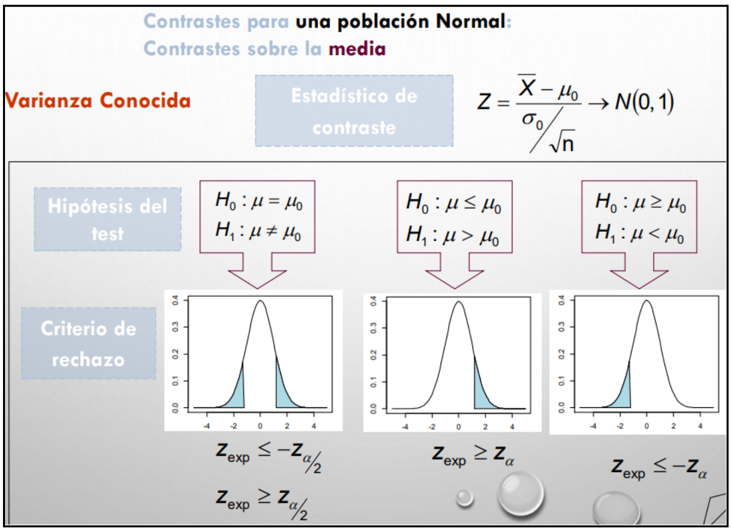
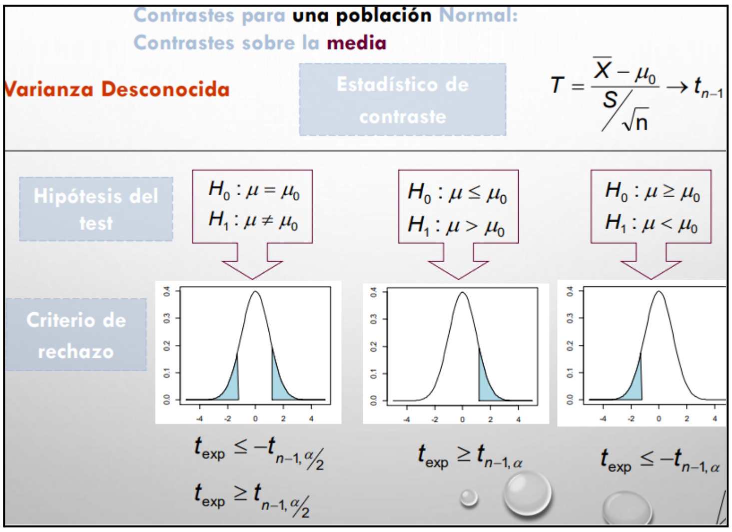
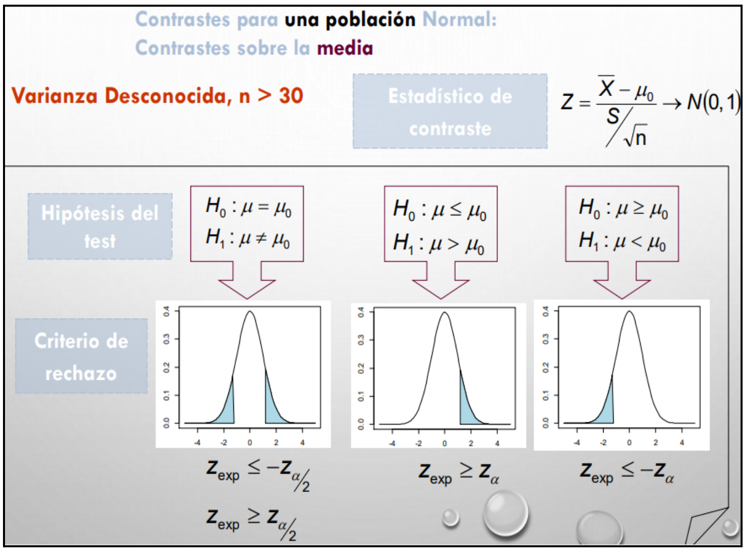
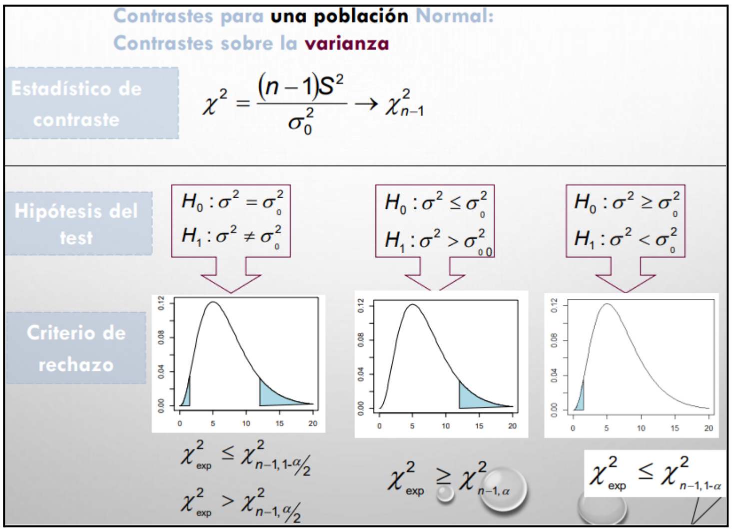
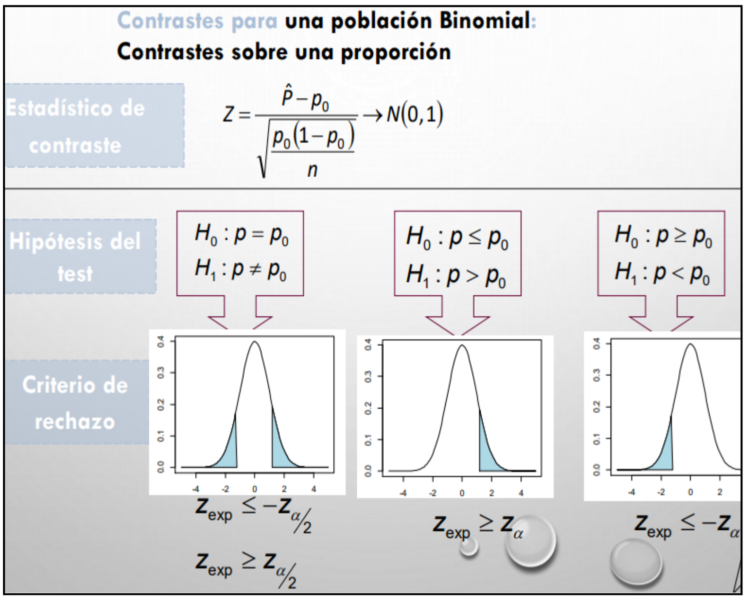
INFERENCIA ESTADÍSTICA: Test de hipótesis.

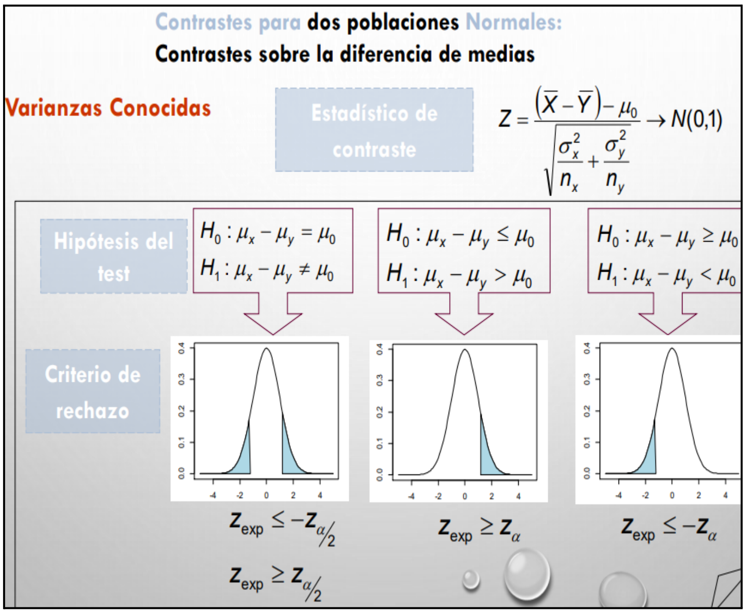












Contrastes para dos poblaciones Normales: Contrastes sobre la diferencia de medias

Varianzas desconocidas pero iguales

$$S_p = \sqrt{\frac{(n_x - 1)S_x^2 + (n_y - 1)S_y^2}{n_x + n_y - 2}}$$

Estadístico de contraste

$$T = \frac{\overline{X} - \overline{Y} - \mu_0}{S_p \sqrt{\frac{1}{n_x} + \frac{1}{n_y}}} \to t_{n_x + n_y - 2}$$

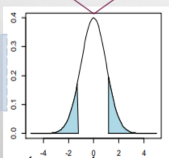
Hipótesis del test

$H_0 : \mu_x - \mu_y = \mu_0$, $H_1 : \mu_x - \mu_y \neq \mu_0$

$H_0 : \mu_x - \mu_y \leq \mu_0$, $H_1 : \mu_x - \mu_y > \mu_0$

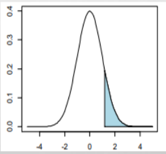
$H_0 : \mu_x - \mu_y \geq \mu_0$, $H_1 : \mu_x - \mu_y < \mu_0$

Criterio de rechazo

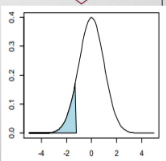


$t_{exp} \leq -t_{n_x+n_y-2,\alpha/2}$

$t_{exp} \geq t_{n_x+n_y-2,\alpha/2}$



$t_{exp} \geq t_{n_x+n_y-2,\alpha}$



$t_{exp} \leq -t_{n_x+n_y-2,\alpha}$

Contrastes para dos poblaciones Normales: Contrastes sobre la diferencia de medias

Varianzas desconocidas, distintas o no, tamaños muestrales grandes (n_x, n_y $\geq$ 30)

Estadístico de contraste

$$Z = \frac{(\overline{X} - \overline{Y}) - \mu_0}{\sqrt{\frac{S_x^2}{n_x} + \frac{S_y^2}{n_y}}} \to N(0,1$$

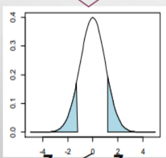
Hipótesis del test

$H_0 : \mu_x - \mu_y = \mu_0$, $H_1 : \mu_x - \mu_y \neq \mu_0$

$H_0 : \mu_x - \mu_y \leq \mu_0$, $H_1 : \mu_x - \mu_y > \mu_0$

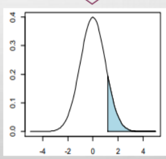
$H_0 : \mu_x - \mu_y \geq \mu_0$, $H_1 : \mu_x - \mu_y < \mu_0$

Criterio de rechazo

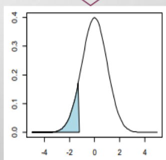


$z_{exp} \leq -z_{\alpha/2}$

$z_{exp} \geq z_{\alpha/2}$



$z_{exp} \geq z_{\alpha}$



$z_{exp} \leq -z_{\alpha}$

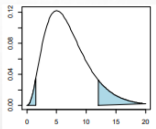
Contrastes para dos poblaciones Normales: Contrastes sobre el cociente de varianzas

Hipótesis del test | Criterio de rechazo

Estadístico de contraste

$$F = \frac{S_x^2}{S_y^2} \to F_{n_x-1, n_y-1}$$

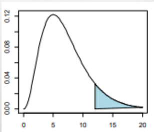
$H_0 : \sigma_x^2 = \sigma_y^2$, $H_1 : \sigma_x^2 \neq \sigma_y^2$



$F_{exp} \leq F_{n_x-1, n_y-1, 1-\alpha/2}$

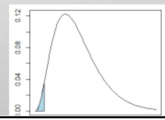
$F_{exp} \geq F_{n_x-1, n_y-1, \alpha/2}$

$H_0 : \sigma_x^2 \leq \sigma_y^2$, $H_1 : \sigma_x^2 > \sigma_y^2$



$F_{exp} \geq F_{n_x-1, n_y-1, \alpha}$

$H_0 : \sigma_x^2 \geq \sigma_y^2$, $H_1 : \sigma_x^2 < \sigma_y^2$



$F_{exp} \leq F_{n_x-1, n_y-1, 1-\alpha}$

Contrastes para dos poblaciones Binomiales: Contrastes sobre la diferencia de proporciones

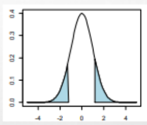
Estadístico de contraste

$$Z = \frac{(\hat{P}_X - \hat{P}_y) - p_0}{\sqrt{\frac{\hat{P}_x(1-\hat{P}_x)}{n_x} + \frac{\hat{P}_y(1-\hat{P}_y)}{n_y}}} \to N(0,1)$$

Criterio de rechazo

Hipótesis del test

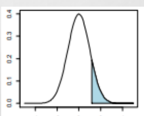
$H_0 : p_x - p_y = p_0$, $H_1 : p_x - p_y \neq p_0$



$z_{exp} \leq -z_{\alpha/2}$

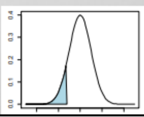
$z_{exp} \geq z_{\alpha/2}$

$H_0 : p_x - p_y \leq p_0$, $H_1 : p_x - p_y > p_0$



$z_{exp} \geq z_{\alpha}$

$H_0 : p_x - p_y \geq p_0$, $H_1 : p_x - p_y < p_0$



$z_{exp} \leq -z_{\alpha}$

María Cordero Iglesias 1C Biología