FORMULAS DE ESTADISTICA II

INFERENCIA SOBRE UNA POBLACION

$\overline{X} \pm Z_\phi \, \sigma/\sqrt{n}$ $n = \left(\dfrac{Z_\phi \sigma}{E}\right)^2$	$\overline{X}_c = \mu_0 \pm Z_\phi \, \sigma/\sqrt{n}$ $n = \left[\dfrac{(Z_{1-\alpha} + Z_{1-\beta})\sigma}{\mu_0 - \mu_1}\right]^2$	$\hat{p} \pm Z_\phi \sqrt{\dfrac{\hat{p}\hat{q}}{n}}$ $n = \dfrac{Z_\phi^2 \hat{p}\hat{q}}{E^2}$	$\hat{p}_c = p_0 \pm Z_\phi \sqrt{\dfrac{p_0 q_0}{n}}$ $n = \left(\dfrac{Z_{1-\alpha}\sqrt{p_0 q_0} + Z_{1-\beta}\sqrt{p_1 q_1}}{p_1 - p_0}\right)^2$
$\overline{X} \pm t_{\nu;\phi} \, S/\sqrt{n}$ $n = \left(\dfrac{t_{\nu;\phi} S}{E}\right)^2$	$\overline{X}_c = \mu_0 \pm t_{\nu;\phi} \, S/\sqrt{n}$	$\left\{\dfrac{S^2(n-1)}{\chi^2_{\nu;1-\alpha/2}}; \dfrac{S^2(n-1)}{\chi^2_{\nu;\alpha/2}}\right\}$	$\chi^2 = \dfrac{S^2(n-1)}{\sigma^2}$

PRUEBAS NO PARAMETRICAS

$\chi^2 = \sum_i \dfrac{(O_i - E_i)^2}{E_i}$	$\chi^2 = \sum_i \sum_j \dfrac{(O_{ij} - E_{ij})^2}{E_{ij}}$

INFERENCIA SOBRE DOS POBLACIONES

$F = \dfrac{S_1^2}{S_2^2}$	$Z = \dfrac{(\overline{x}_1 - \overline{x}_2) - \mu_{(\overline{x}_1 - \overline{x}_2)}}{\sigma_{(\overline{x}_1 - \overline{x}_2)}} = \dfrac{(\overline{x}_1 - \overline{x}_2) - D_0}{\sqrt{\dfrac{\sigma_1^2}{n_1} + \dfrac{\sigma_2^2}{n_2}}}$
$t = \dfrac{(\overline{x}_1 - \overline{x}_2) - D_0}{S_a\sqrt{\dfrac{1}{n_1} + \dfrac{1}{n_2}}}$ $\text{donde: } S_a^2 = \dfrac{S_1^2(n_1 - 1) + S_2^2(n_2 - 1)}{n_1 + n_2 - 2}$	$t = \dfrac{(\overline{x}_1 - \overline{x}_2) - D_0}{\sqrt{\dfrac{S_1^2}{n_1} + \dfrac{S_2^2}{n_2}}}$ $donde: \nu = \dfrac{\left(\dfrac{S_1^2}{n_1} + \dfrac{S_2^2}{n_2}\right)^2}{\left(\dfrac{S_1^2}{n_1}\right)^2 \dfrac{1}{\nu_1} + \left(\dfrac{S_2^2}{n_2}\right)^2 \dfrac{1}{\nu_2}}$
$t = \dfrac{\overline{d} - \mu_d}{S_d/\sqrt{n}}$ $\text{donde: } \overline{d} = \dfrac{\sum d_i}{n} \quad \text{y} \quad S_d = \sqrt{\dfrac{\sum_{i=1}^{n}(d_i - \overline{d})^2}{n-1}}$	

ANÁLISIS DE REGRESIÓN Y CORRELACION LINEAL

<table>
<tr>
<td>Cálculos Auxiliares:
$S_{xx} = \sum x^2 - n\bar{x}^2$
$S_{yy} = \sum y^2 - n\bar{y}^2$
$S_{xy} = \sum xy - n\bar{x}\bar{y}$</td>
<td colspan="2">$\hat{y} = a + bx$
donde
$a = \bar{y} - b\bar{x}$ $\quad$ $b = \dfrac{\sum xy - n\bar{x}\bar{y}}{\sum x^2 - n\bar{x}^2} = \dfrac{S_{xy}}{S_{xx}}$</td>
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<tr>
<td colspan="3">$S_{y/x}^2 = S_e^2 = \dfrac{\sum_{i=1}^{n} (y_i - \hat{y})^2}{n-2} = \dfrac{SC\text{Residuos}}{n-2} = \dfrac{1}{n-2}\left[S_{yy} - \left(b^2 * S_{xx}\right)\right]$</td>
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<tr>
<td>$\hat{y} \pm t_{\nu;\phi} S_{\hat{y}}$
donde:
$S_{\hat{y}} = S_e \sqrt{\dfrac{1}{n} + \dfrac{(x_0 - \bar{x})^2}{S_{XX}}}$</td>
<td>$\hat{y} \pm t_{\nu;\phi} S_{yc}$
donde:
$S_{y_0} = S_e \sqrt{1 + \dfrac{1}{n} + \dfrac{(x_0 - \bar{x})^2}{S_{XX}}}$</td>
<td>$t = \dfrac{b - \beta}{S_b}$; t $_{\nu;\phi}$
donde:
$S_b = \sqrt{\dfrac{S_e^2}{S_{xx}}}$</td>
</tr>
<tr>
<td colspan="2">$r^2 = \dfrac{S_{xy}^2}{S_{xx} * S_{yy}} = \dfrac{SCExplicada}{SCTotal} = 1 - \dfrac{S_e^2 \nu}{S_{yy}}$</td>
<td>$r = \dfrac{S_{xy}}{\sqrt{S_{xx} * S_{yy}}}$</td>
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