**Intervals de Confiança**

- Per a la mitjana **μ**, on **σ** és coneguda

$$\left[\bar{X}-u_{\gamma}\cdot\frac{\sigma}{\sqrt{n}},\bar{X}+u_{\gamma}\cdot\frac{\sigma}{\sqrt{n}}\right]$$ [normal]

- Per a la mitjana **μ**, on **σ** és desconeguda

$$\left[\bar{X}-t_{n-1,\gamma}\cdot\frac{S_n}{\sqrt{n-1}},\bar{X}+t_{n-1,\gamma}\cdot\frac{S_n}{\sqrt{n-1}}\right]$$ [t-Student]

- Per a la variància **σ**

$$\left[\frac{n\cdot S_n^2}{v_{n-1,\gamma}},\frac{n\cdot S_n^2}{u_{n-1,\gamma}}\right]$$ [Khi^2]

- Per a la proporció **p**

$$\left[\bar{X}-u_{\gamma}\cdot\sqrt{\frac{\bar{X}\cdot(1-\bar{X})}{n}},\bar{X}+u_{\gamma}\cdot\sqrt{\frac{\bar{X}\cdot(1-\bar{X})}{n}}\right]$$ [normal]

- Per a mostres grans (n > 30)

$$\left[\bar{X}-u_{\gamma}\cdot\frac{S_n}{\sqrt{n-1}},\bar{X}+u_{\gamma}\cdot\frac{S_n}{\sqrt{n-1}}\right]$$ [normal]

- Per a dues mostres, dades aparellades (Restar/Sumar mostres)

$$\left[\bar{X}-t_{n-1,\gamma}\cdot\frac{S_n}{\sqrt{n-1}},\bar{X}+t_{n-1,\gamma}\cdot\frac{S_n}{\sqrt{n-1}}\right]$$ [t-Student]

- Per a dues mostres, no aparellades. Per a **μx – μy**, on **σx** i **σy** conegudes

$$\left[\bar{X}-\bar{Y}-u_{\gamma}\cdot\sqrt{\left(\frac{\sigma_x^2}{n}+\frac{\sigma_y^2}{m}\right)},\bar{X}-\bar{Y}+u_{\gamma}\cdot\sqrt{\left(\frac{\sigma_x^2}{n}+\frac{\sigma_y^2}{m}\right)}\right]$$ [normal]

- Per a dues mostres, no aparellades. Per a **μx – μy**, on **σx** i **σy** desconegudes i iguals

$$\left[\bar{X}-\bar{Y}-t_{n+m-2,\gamma}\cdot\sqrt{\frac{(n+m)(n\cdot S_x^2+m\cdot S_y^2)}{n\cdot m\cdot(n+m-2)}},\bar{X}-\bar{Y}+t_{n+m-2,\gamma}\cdot\sqrt{\frac{(n+m)(n\cdot S_x^2+m\cdot S_y^2)}{n\cdot m\cdot(n+m-2)}}\right]$$ [t-Student]

- DISTRIBUCIONS

Normal: $u_{\gamma}=qnorm\left(1-\frac{1-\gamma}{2}\right)$

t-Student: $t_{n-1,\gamma}=qt\left(1-\frac{1-\gamma}{2}\right)$

Khi^2: $u_{n-1,\gamma}=qchisq\left(\frac{1-\gamma}{2}\right)$ , $v_{n-1,\gamma}=qchisq\left(1-\frac{1-\gamma}{2}\right)$

- DESVIACIÓ MOSTRAL

$$S_n^2=\frac{\sum(x_i-\bar{X})^2}{n}$$

**Contrastos d'Hipòtesi**

- Per a la mitjana **μ**, quan **σ** és coneguda

$$EC=\frac{\bar{X}-\mu_0}{\frac{\sigma}{\sqrt{n}}}$$ [normal]

- Per a la mitjana **μ**, quan **σ** és desconeguda

$$EC=\frac{\bar{X}-\mu_0}{\frac{S_n}{\sqrt{n-1}}}$$ [t-Student]

- Per a la variància **σ**

$$EC=\frac{n\cdot S_n^2}{\sigma_0^2}$$ [Khi^2]

- Per a la proporció **p**

$$EC=\frac{\sqrt{n}\cdot(\bar{X}-p_0)}{\sqrt{p_0(1-p_0)}}$$ [normal]

- Per a la mitjana **μ**, en mostres grans (n > 30)

$$EC=\frac{\bar{X}-\mu_0}{\frac{S_n}{\sqrt{n-1}}}$$ [normal]

- Per a dues mostres normals. Per a **μx – μy**, on **σx** i **σy** conegudes

$$EC=\frac{\bar{X}-\bar{Y}}{\sqrt{\left(\frac{\sigma_x^2}{n}+\frac{\sigma_y^2}{m}\right)}}$$ [normal]

- Per a dues mostres normals. Per a **μx – μy**, on **σx** i **σy** desconegudes i iguals

$$EC=\frac{\bar{X}-\bar{Y}}{\sqrt{n\cdot S_x^2+m\cdot S_y^2}}\cdot\sqrt{\frac{n\cdot m\cdot(n+m-2)}{n+m}}$$ [t-Student]

- **Normal**

$2\cdot(1-pnorm(EC))[Bilateral]$

$1-pnorm(EC)[Unilateral(mes\ gran)]$

$pnorm(EC)[Unilateral(mes\ petit)]$

- **t-Student**

$2\cdot(1-pt(EC,n-1))[Bilateral]$

$1-pt(EC,n-1)[Unilateral(mes\ gran)]$

$pt(EC,n-1)[Unilateral(mes\ petit)]$

- **Khi^2**

$si\ 1-pchisq(EC,n-1)<0{,}5\rightarrow 2\cdot(1-pchisq(EC,n-1))[Bilateral]$

$si\ 1-pchisq(EC,n-1)>0{,}5\rightarrow 2\cdot pchisq(EC,n-1)[Bilateral]$

$1-pchisq(EC,n-1)[Unilateral(mes\ gran)]$

$pchisq(EC,n-1)[Unilateral(mes\ petit)]$