Repetisjon veke 39

Poisson fordelinga

$$P(X=x)=\frac{(\lambda t)^x e^{-\lambda t}}{x!},\ x=0,1,2,\ldots$$

$$E[X]=\lambda t,\ \mathrm{Var}[X]=\lambda t$$

Med $\lambda t=\lambda'$ blir $P(X=x)=\frac{(\lambda')^x e^{-\lambda'}}{x!},$ x=0,1,2,…

$$\left.\begin{array}{l} n\to\infty \\ p\to 0 \end{array}\right\} \text{ slik at np=}\lambda' \Rightarrow X\sim B(n,p)\to \text{Poisson}(\lambda')$$

Normalfordelinga

$$X\sim N(\mu,\sigma^2)\Leftrightarrow f(x)=\frac{1}{\sqrt{2\pi}\sigma}e^{-\frac{(x-\mu)^2}{2\sigma^2}},\ -\infty<x<\infty$$

$$E[X]=\mu,\ Var[X]=\sigma^2$$

$$X\sim N(\mu,\sigma^2)\Rightarrow Z=\frac{X-\mu}{\sigma}\sim N(0,1)$$

$$P(x_1\le X\le x_2)=P\left(\frac{x_1-\mu}{\sigma}\le Z\le\frac{x_2-\mu}{\sigma}\right)$$

$$\left.\begin{array}{c} np\ge 5 \\ n(1-p)\ge 5 \end{array}\right\}\Rightarrow X\sim B(n,p)\approx N(np,np(1-p))$$