$X = \#$ of classes after 14 days

$X = I_M + I_C$

$E[X] = E[I_M] + E[I_C]$

$E[\text{random var}]$

$E[I_M] = Pr[M \le 14]$

$= 0 \cdot Pr[I_M = 0]$
$+ 1 \cdot Pr[I_M = 1]$

Binomial ——— count # of successes ——— Poisson

$E[X] = \lambda$ ——— # of arr

# of arr

Let # of heads $= X \sim Binom(n, 0.3)$

$Pr[X \le 5]$

$X = \#$ of ppl who come in 2 hrs.

$Pr[X > 20]$

$\lambda = 18$

continuous (time)

$\lambda = 9 \text{ ppl}/hr$

$= \dfrac{9 \text{ ppl}}{hr} \cdot \dfrac{1 hr}{60 min} = 0.15 \text{ ppl}/min$

$Pr[\#\text{ of heads} \le 5]$

Geom ——— waiting time ——— Expo

Tossing a 0.3-coin n times

discrete (coin toss)

Let # of tosses $= X$

$\sim Geom(0.3)$

$Pr[X \le 5]$

$Pr[\#\text{ of tosses till next } H \le 5]$

$= 1 - (1 - 0.3)^5$

$X = \#$ of mins until next customer

$Pr[X > 20]$

$\lambda = 0.15$