# SI_PG_Coursera

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```
ECHO=TRUE
set.seed(1337)
Lbda = 0.2
e_x_p_o_nen_tials = 40
```

```
simulationmeans = NULL
for (i in 1 : 1000) simulationmeans = c(simulationmeans, mean(rexp(e_x_p_o_nen_tials, Lbda)))
```

```
mean(simulationmeans)
```

```
## [1] 5.055995
```

```
Lbda^-1
```

```
## [1] 5
```

```
abs(mean(simulationmeans)-Lbda^-1)
```

```
## [1] 0.05599526
```

```
var(simulationmeans)
```

```
## [1] 0.6543703
```

```
(Lbda * sqrt(e_x_p_o_nen_tials))^-2
```

```
## [1] 0.625
```

```
abs(var(simulationmeans)-(Lbda * sqrt(e_x_p_o_nen_tials))^-2)
```

```
## [1] 0.0293703
```

```
library(ggplot2)
```

```
## Warning: package 'ggplot2' was built under R version 3.6.3
```

```
ggplot(data.frame(y=simulationmeans), aes(x=y)) +
  geom_histogram(aes(y=..density..), binwidth=0.2, fill="#00BBBB",
                 color="grey") +
  stat_function(fun=dnorm, arg=list(mean=Lbda^-1,
                                    sd=(Lbda*sqrt(e_x_p_o_nen_tials))^-1),
                size=2) +
  labs(title="sim plot scenes", x="Simul mean scenes")
```

```
## Warning: Ignoring unknown parameters: arg
```