

SOC 4930/5050: Week 05 Functions Quick Reference

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Packages

- `ggplot2` (see Jotter/Wiki)
- `moments`
- `nortest`
- `stats`

Binomial Distribution

For the binomial distribution, let:

n = number of independent trials

k = number of successes

p = probability of success in each trial

Probability of k Successes

`stats::dbinom(k , size= n , prob= p)`

Probability of k or Fewer Successes

`stats::pbinom(k , size= n , prob= p , lower.tail=TRUE)`

Probability of More Than k Successes

`stats::pbinom(k , size= n , prob= p , lower.tail=FALSE)`

Poisson Distribution

For the Poisson distribution, let:

$$m = \lambda$$

k = number of successes

Probability of k Successes

```
stats::dpois(k, lambda=m)
```

Probability of k or Fewer Successes

```
stats::ppois(k, lambda=m, lower.tail=TRUE)
```

Probability of More Than k Successes

```
stats::ppois(k, lambda=m, lower.tail=FALSE)
```

Normal Distribution

For the normal distribution, let:

z = standardized score

Cumulative Probability

```
stats::pnorm(z, mean=0, sd=1, lower.tail=TRUE)
```

*Normality Testing**Descriptive Statistics*

```
moments::skewness(data$var)
```

```
moments::kurtosis(data$var)
```

Q-Q Plot

```
stats::qqnorm(data$var); qqline(data$var)
```

Shapiro-Francia Test

```
nortest::sf.test(data$var)
```