

# Bayesian Statistics

Here is a list of interactive applications related to the course *Bayesian Statistics course Level III/IV* .

To use these applications run *rstudio*, and set your workspace to be *Bayesian\_Statistics* .

## How to get the files

In order to download the applications to your computer, do the following:

1. Run rstudio
2. In the console run
  - `install.packages("rmarkdown")`
3. Go to File>New Project>Version Control>Git
4. In the section "Repository URL" type:
  - `https://github.com/georgios-stats/Bayesian\_Statistics.git`

## Applications

### Known distributions

Just some known distributions

Execute command

```
rmarkdown::run("./demo_distributions/demo_distributions.Rmd")
```

### Central limit Theorem

A demo about the central limit theorem

Execute command

```
rmarkdown::run("./demo_CLT/demo_CLT.Rmd")
```

### Weak law of large numbers

A demo about the weak law of large number

Execute command

```
rmarkdown::run("./demo_WLLN/demo_WLLN.Rmd")
```

### Conjugate priors

Explore the behaviour of the posterior distribution, with respect to the hyperparameters of the prior distributions, and the number of observables.

Execute command

```
rmarkdown::run("./demo_ConjugatePriors/demo_ConjugatePriors.Rmd")
```

## Compare priors

Explore the behaviour of the posterior distribution, with respect to different priors (and their hyperparameters), and the number of observables.

Execute command

```
rmarkdown::run("./demo_ConjugateJeffreysLaplacePriors/demo_ConjugateJeffreysLaplacePriors.Rmd")
```

## Mixture priors

Explore the behaviour of the mixture posterior distribution, with respect to mixture priors (and their hyperparameters).

Execute command

```
rmarkdown::run("./demo_ConjugatePriors/demo_ConjugatePriors.Rmd")
```