noise

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Noise - using GSL random numbers

```
../../bin/noise noise_default.csv
```

The above uses the default **taus** random number generator.

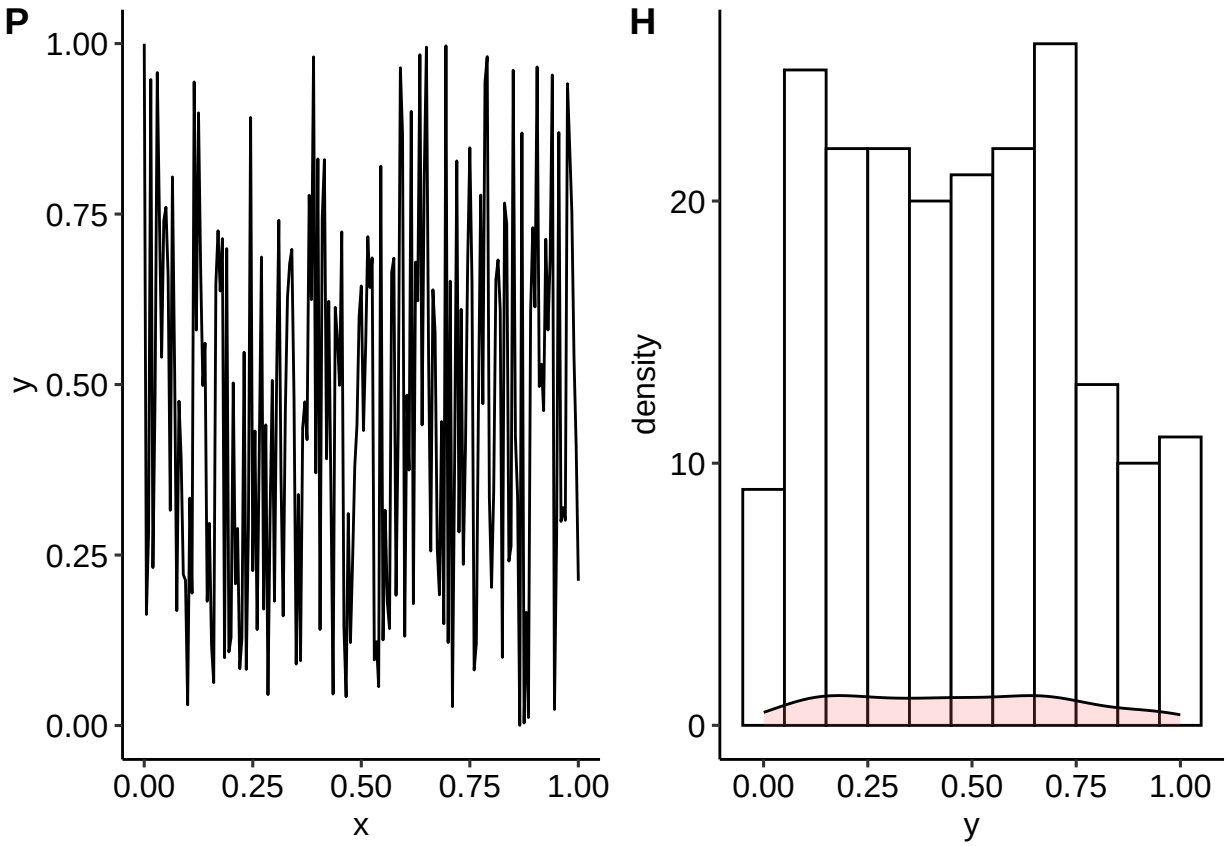
Default Random Number generator

```
library(ggplot2)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(ggpubr)
theme_set(theme_pubr())

noiseplot <- function (csvname,title) {
  signal<-read.csv(csvname,header=FALSE,sep=",")
  names(signal)<-c("x","y")
  p<-ggplot(signal,aes(x=x,y=y))+geom_line()
  #h<-hist(signal$y,main=title,xlab="bins")
  h<-ggplot(signal,aes(x=y))+geom_histogram(binwidth = max(signal$y)/10.0 , colour="black", fill="white
    geom_density(alpha=.2, fill="#FF6666")
  ggarrange(
  p, h, labels = c("P", "H"),
  common.legend = TRUE, legend = "bottom"
  )
```

```
  #h
}

noiseplot("noise_default.csv","Default Uniform Random Numbers")
```

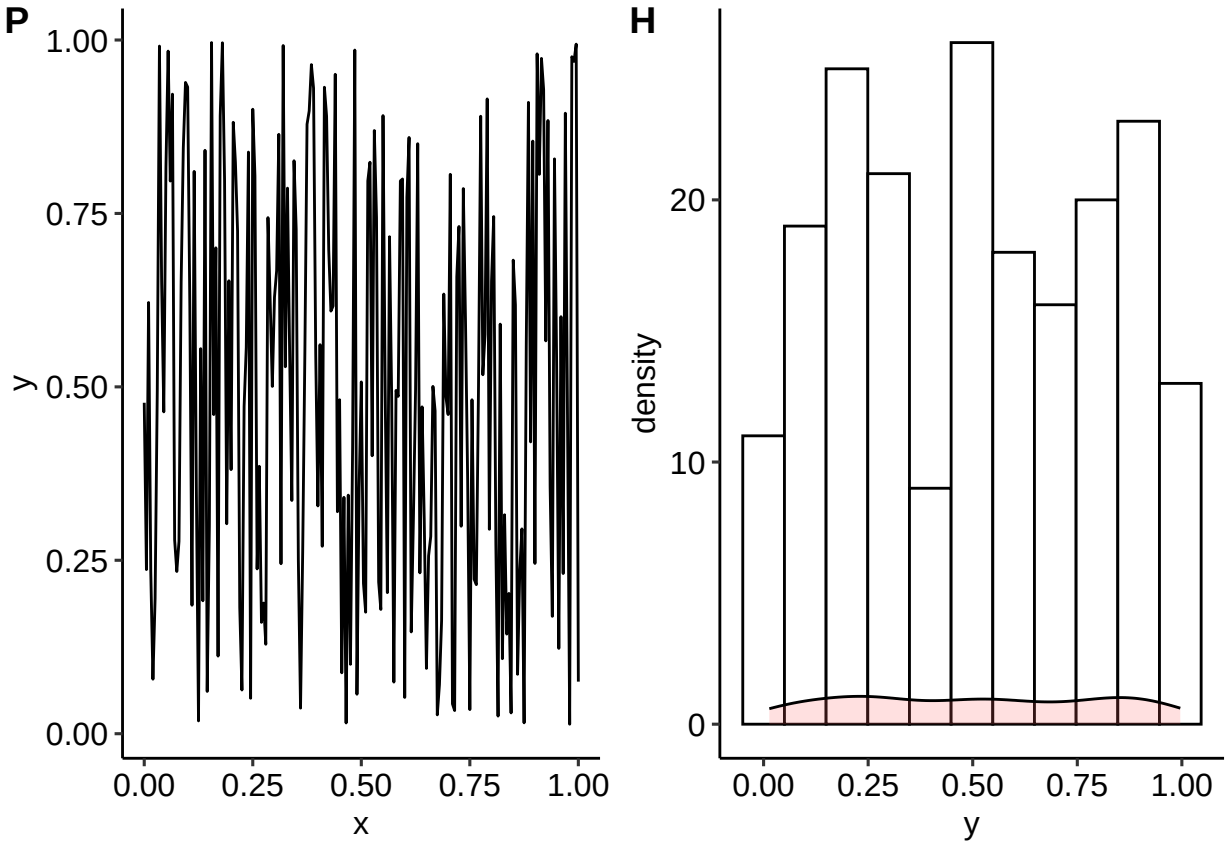


Different generator - Knuth

```
GSL_RNG_TYPE=knuthran2002 ../../bin/noise noise_knuth.csv
```

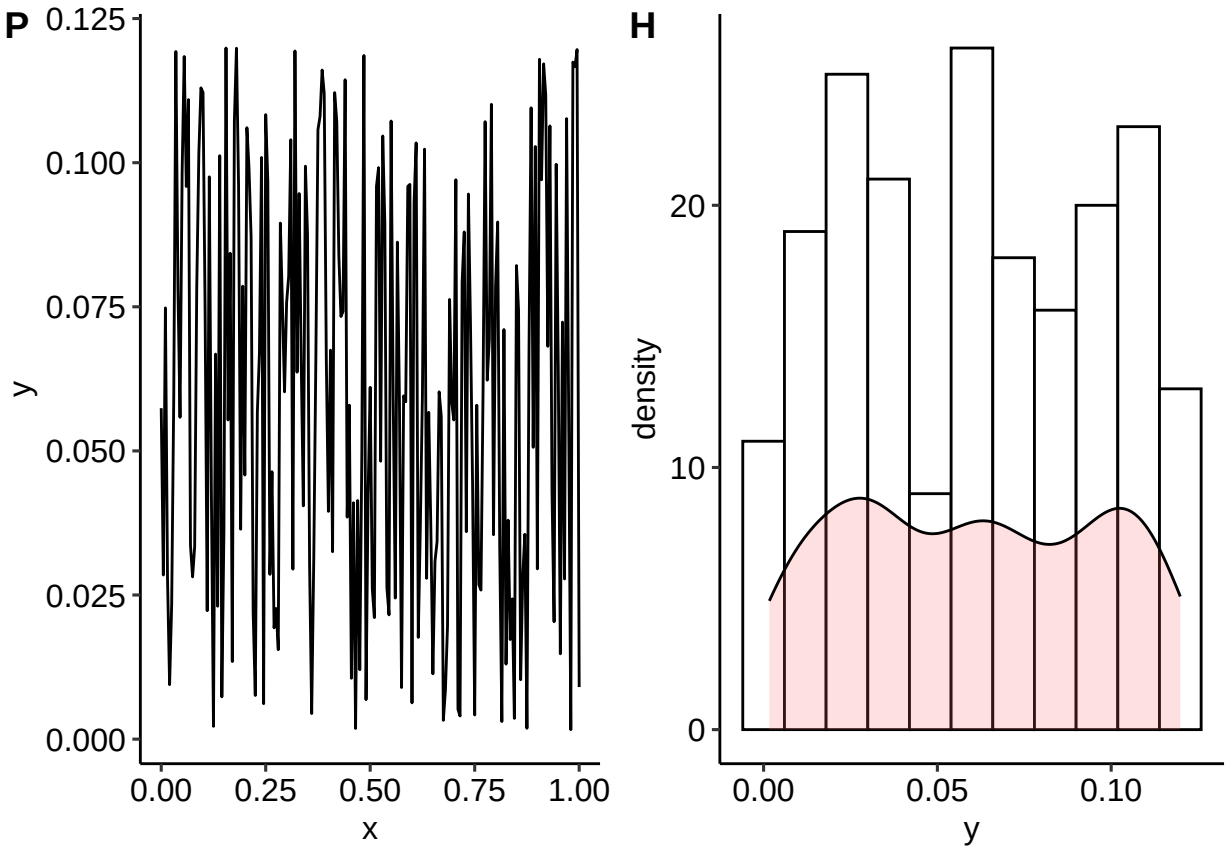
```
## GSL_RNG_TYPE=knuthran2002
```

```
noiseplot("noise_knuth.csv","Knuth 2002 - Uniform Random Numbers")
```



Nornalized

```
noiseplot("noise_knuth.csv_norm.csv","Knuth 2002 - Normalized Uniform Random Numbers")
```


P
0.125
0.100
0.075
0.050
0.025
0.000
y
0.00
0.25
0.50
0.75
1.00
x
H
20
10
0
density
0.00
0.05
0.10
y