Johns Hopkins Engineering

625.464 Computational Statistics

A Few Comments on R
Part 1

Module 1 Lecture 1B

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WHITING SCHOOL
of ENGINEERING

What is R?

R is a powerful software for interacting with data. Is also a programming language.

Documentation can be found at www.r-project.org or by searching "R software".

- Codeschool.com → free course on R
- A (very) Short Introduction to R
  - Torfs & Brauer
- A Quink Intro to R
  - wilkenson

General Comments on R

- R is case sensitive
- variable names should only contain
  A-Z, a-z, 0-9
- does not print variable assignments
- commands sep by ; or a newline
  and grouped by braces {}
- R is interpretive
- # to comment
- Recall commands using ↑ and ↓
- if a command doesn't end, + appears on next line

R as a calculator

```
2+3-7
2*3/4
sqrt(100)
100^(1/3)
```

```
factorial()
abs()
exp()
log()
pi
sin()
cos()
asin()
```

```
help(sin)
```

Simple objects in R

Simple arrays

1:10

10:1

1:10 + 11:20

(10:1)^2

c(1,2,3)

aa=c(a,a)

fn=c(1, 9, 8, ...
+)

Assigning variables

a = 1:10

a<— 1:10

data=scan()
1
2
3
blankline

Simple functions in R

```
a = 1:10
sum(a)
mean(a)
sd(a)
mode(a)
```

type of storage

```
up = function(x){
    return(mean(x)+sd(x))
    }
up(a)
up
mode(up)
```

Matrices

```
A = matrix(c(1,3,5,2,4,6), nrow=2)
aa = c(1:10,1:10)
bigaa = array(aa, dim=c(4,5))
```

```
A[2,1]
W = [2, 1:3]
```

```
A[1,] ← row
A[,2] ← col.
```