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The *R* Workshop

Applying the Integrated Suite of Software Facilities for Statistical Computing and Graphics

University of Georgia
Department of Workforce Education, Leadership, and Social Foundations
College of Education Research Office

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1. Introduction

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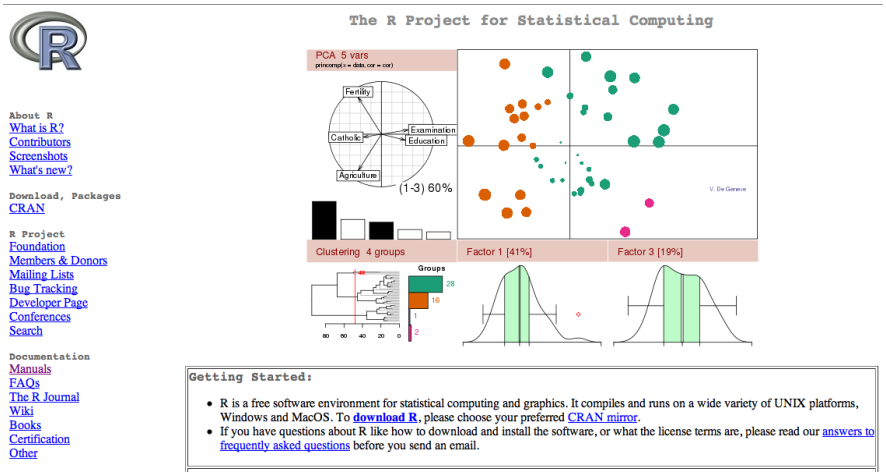
R is...

- A programming language and an environment for data manipulation, (statistical) computing, and graphical display.
- Powerful, but **FREE**!

Introduction

Download and Installation

http://www.r-project.org



Download and Installation

1. Click on "*CRAN*".
2. Select a mirror site near you.
3. Click on "*Download and install R*".
4. Click on "*base*".
5. Download the installation file and run it!

Console

- Run R, then a R-GUI window will appear.
- In R-GUI window, you'll see another window called 'R console'.
- Command prompt:

```
> 3+2
[1] 5
> pi
[1] 3.141693
```

Working Directory

- *Working directory* is the default location for all file input and output.
- Use `getwd()` to report the current working directory, and use `setwd()` to change your working directory.

```
> getwd( )
> setwd("c:/users/mywork")
```

- Or, from the main menu, select

  `"File"` → `"Change dir…"`

Help

- Need a help for persp()? Type in command prompt:

  `> ? persp` or `> help(persp)`

- Need extended help? Type in command prompt:

  `> ?? log` or `> help.search("log")`

- Online documentation: Visit R-project website and click on "Manuals".

Package(s)

- All R functions and datasets are stored in packages
- Installation of a package
  `> install.packages("package name")`
- Loading a package
  `> library("package name")`
- Unloading a package
  `> detach("package name")`

R command

- For variable names, we may use alphabets, numbers, period(.), underscore(_), etc.
- For assignment, <− is used. You may use =, but not preferable
- All names should begin with alphabet or period(.)
- Semicolon(;) separates multiple commands.
  `> beta.0 <- 3 ; beta.1 <- 2`
- Comments begin with #
  `> rnorm(100) # to generates 100 random numbers`

R command

- Use arrow keys for recalling former commands.
- Type the name of a variable to print its value onto console.

```
> beta.0
[1] 3
> beta.0 + 1
[1] 4
```

R command

- Case-sensitive

```
> a <- 1
> A <- 2
> a==A
[1] FALSE
```

- The objects are stored in R's database

```
> ls()  # list the objects stored in database
```

- Run the script files.

```
> source("sample.R")
```