Lecture 1: Getting started

IST5573

統計方法 Statistical methods

2016/9/14

Getting started with R

- Installing R
  - Installing R on Windows: https://github.com/genomicsclass/windows#installing-r
  - Installing R on Mac: http://youtu.be/Icawuhf0Yqo
- Installing RStudio
  - A program for viewing and running R scripts.
  - Technically you can run all the codes without installing RStudio.
  - But we highly recommend this integrated development environment (IDE).
  - Instruction: http://www.rstudio.com/products/rstudio/download3/

- Installing R packages
  - RMD_example 1.1

- Learn R basics
  - Package swirl (http://swirlstats.com/) tutorial:
    - RMD_example 1.1
  - 「中華R軟體學會」的「R軟體教學影片」：
    http://www.r-software.org/movielist
  - try R: http://tryr.codeschool.com/
  - Quick-R: http://www.statmethods.net/

RStudio

- RStudio has four panels
  - the source
  - the console
  - the environment or history panel, and
  - the fourth panel for help and plots and others, depending on which tab you click.
- In order to run a command from the Source panel, you can either click the button Run or you can use the keyboard shortcut Control-Enter.
- Can create and compile R Markdown, R Sweave format files.

R Markdown

- Introduction: https://vimeo.com/178485416
- Installation (in R)
  - install.packages("rmarkdown")
- Get started:
  http://rmarkdown.rstudio.com/lesson-1.html

Importing data into R

- Working directory
  - the directory or folder in which R will save or look for files by default
- Know your working directory

  - getwd()
- Change your working directory
  - setwd("C:/Users/USER/Documents")
  - through RStudio by clicking on "Session"
- You can read and write to the working directory. However, you can also type the full path.

- Start a project in RStudio
  - In RStudio, click on "File" and "New Project". When creating the project, you will select a folder to be associated with it.
  - You can then download all your data and save all your created R script, R Markdown, … files into this folder.
  - Your working directory will be this folder.

- Download file with your browser to your working directory
  - RMD_example 1.2
- Download from within R
  - RMD_example 1.3
- Read the file directly
  - RMD_example 1.4

R package dplyr

- A grammar of data manipulation. A fast, consistent tool for working with data frame like objects, both in memory and out of memory.

- https://github.com/hadley/dplyr

- Example:
  - RMD_example 1.5