Statistical Computing: Introduction

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General information

- **Lecturer**
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- **Language**: The course is taught in Chinese. The course materials are in English.
- **Reception hours**: Questions concerned with this course can be asked after each lecture or via email.
- **Lecture notes and course materials**
  - **An Introduction to R**
    (http://cran.r-project.org/doc/manuals/R-intro.pdf)
  - **Introduction to Scientific Programming and Simulation Using R** by Owen Jones, Robert Maillardet, Andrew Robinson
  - Course materials and updated news are available at the course homepage
    (http://feng.li/teaching/sc2017spring/)
- **Working load**: Depending on your own situation and you ambition, you decide how much time you want to input. But there are compulsory assignments including presentation and discussions should be done in order to pass the exam.
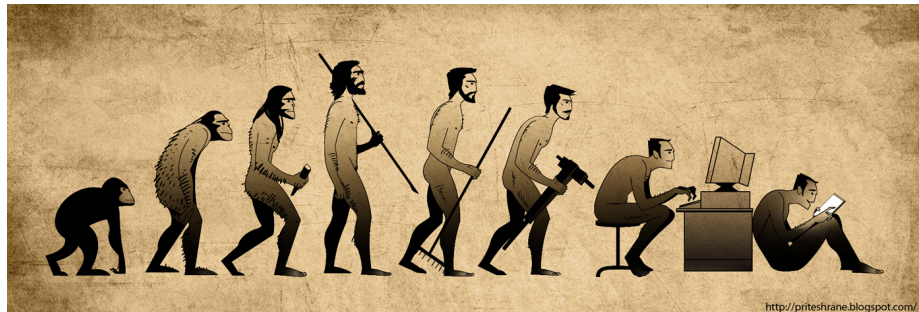
Assignments and examinations

To pass the final exam you have to have at least 60p in the total score with the following tasks.

- **Lab assignments and presentation** (50%)
- **Computer-based examinations** (50%)

Don't worry and it's fun!

The Evolution of Statistical Computing

http://priteshrane.blogspot.com/

The R programing language

- R is an implementation of the S programming language inspired by Scheme.
- S was created by John Chambers while at Bell Labs in the 70's.
- Up to that time, much of the statistical computing was done by directly calling Fortran subroutines; however, S was designed to offer an alternate and more interactive approach.
- R was created by Ross Ihaka and Robert Gentleman at the University of Auckland, New Zealand.
- R is named partly after the first names of the first two R authors and partly as a play on the name of S.
- R is currently developed by the R Development Core Team, of which Chambers is a member.
- R is the top statistical language in the TIOBE index which is also above the commercial software SAS.
- R can be easily used in Big Data analysis platforms, e.g. Hadoop/Spark.

Installing R

Installing **R** on your own computer is simple and free.

1. If you use Microsoft Windows, visit http://www.r-project.org/. It shipped with a simple graphical user interface (GUI).
2. R is available for Mac OS X users with a nice build-in graphical user interface, visit http://www.r-project.org
3. If you use Linux, search the phrase "r-cran" in your system's software repository. Any text editor can be used to edit R source code. But if you want a graphical user interface, **RStudio** (with is easy to install and also available for other platforms) is a good start. Please visit http://www.rstudio.org/download/desktop.

Suggested reading

- R-intro: **Chapter 1, Appendix B, C**