

Biometry. Lecture 2

Alexey Shipunov

Minot State University

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1 Questions and answers

- ## 2 R
- Non-R software
 - Starting with R



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Previous final question: the answer

What is sampling?



Previous final question: the answer

What is sampling?

- Taking few from many



R

Non-R software



Calculators

- Calculator is almost always embedded into OS
- Too elaborative if we use samples



Spreadsheets

- MS Excel, OpenOffice.org/LibreOffice Calc, Gnumeric
- Very handy for data input and visualization
- Do not contain advanced and optimized statistical methods
- Are not able to conduct complex calculations



Graphical statistical software

- SPSS, MiniTab and many others
- Have a high diversity of different graphs and plots
- Will fail if you need to repeat the complex procedures with different datasets



Statistical environments

- SAS, S-Plus and R
- Full control: it is possible to implement *every* statistical method
- User should remember commands



R

Starting with R



R history

- Started in 1993 as non-commercial analog of S-Plus
- R is just another implementation of S statistical language developed in AT&T
- In last five years, became a standard for statistical research
- Has more than 6,200 extension packages



R pros and cons

- Extremely flexible, open source
- No GUI: which command?



Installing R

Windows: SDI, "--no-save" (if possible)



Do something with R (1)

Simple math:

```
> 3+2
```

Do not enter “greater” (>) sign; at the end of each line, type “Enter”.

Be careful with lower/upper case, brackets and quotes!

Spaces, however, are not at all important

Use "arrow up" to repeat command!



Do something with R (2)

Plot and average:

```
> plot(1:20)
> mean(1:20)
> 1:20 # What is 1:20?
```

To repeat previous command, use “arrow up”.

“#” is a comment, everything is ignored after that symbol.

Function starts with letters and contains round brackets ()



Do something with R (3)

Quit R:

```
> q # definition of command
> ?q # help for command
> q() # always answer "No"!
> q("no") # another variant
# (if you are bored with answering)
```



For Further Reading



A. Shipunov.

Biometry [Electronic resource].

2012—onwards.

Mode of access:

http://ashipunov.info/shipunov/school/biol_240



A. Shipunov, and many others.

Visual statistics. Use R!

Ongoing translation from Russian.

