The >eR-Biostat initative

Making R based education materials in statistics assessable for all

BRUSSELS useR 2017!

We >eR a community: the >eR-Biostat initative

Ziv Shkedy
Hasselt University, Belgium & Gondar University, Ethiopia

useR!, 2017, Brussels, Belgium

Visit us on Facebook ER-BioStat

GitHub https://github.com/eR-Biostat

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The >eR-Biostat Initative

- >eR-Biostat = E-learning system using R (biostatistics)
- Joint work with:
  - Nolen Joy Perualila (Hasselt University, Belgium).
  - Ziv Shkedy (Hasselt University, Belgium).
  - Khangelani Zuma (HSRC, South Afrika).
  - Legesse Debusho (University of South Africa, UNISA).
  - Adetayo Kasim (Durham University, UK).

Motivation

- Low capacity in developing countries in education in biostatistics/statistics.
- Reasons:
  - Young teaching stuff (usually with master degrees).
  - Small number of PhD holders.
  - Lack of high quality materials for master programs.
  - Academic staff is not always updated in the current methods/software available.

- Results:
  - Difficult to maintain a master program at a high level.

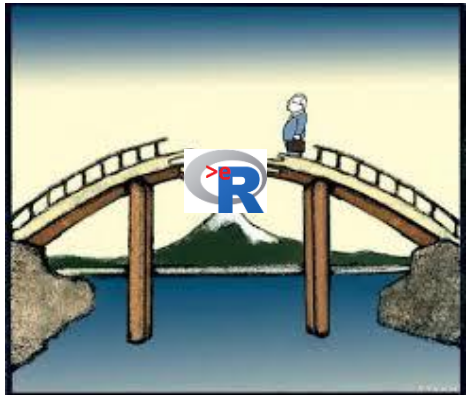
The >eR-Biostat Initiative

- The >eR-Biostat Initiative aims to:
  - Develop accessible course materials in biostatistics/statistics.
  - Focus on master programs.
  - Bring students and teachers costs to minimum by providing free, high quality and applied course materials for both students and teachers.
  - Increase usage of R.

We a community

- Building a bridge between two communities:

Academic staff and master students in developing countries.



Development of E- learning capacity using R.

Academic staff in the north.

The >eR-Biostat Initiative: general idea

- The main idea:
  - Development of online, publically available and free martials at master levels.
  - All materials available to download without password.

- Focus on:
  - Introductory courses: to train students to use R.
  - Core courses: at master level in biostatistics/statistics.

A typical course structure

- Applied approach: link with software so students can implement the methods from the class.
- Focus on R.
- A typical course materials:
  - Slides.
  - Set of R program for all the examples in the slides.
  - Datasets (if not included in R).
  - Home works assignments.
  - Example of Exams.

All available online in a GitHub page.

Courses and time line

- Introductory courses:
  - Introduction to R.
  - Basic concepts in exploratory data analysis and statistical computing using R.
  - Introduction to statistical modeling using R.

online

September/October 2017

- Core (I):
  - Linear models.
  - GLM.
  - Non Parametric.
  - Survival analysis.

July 2018

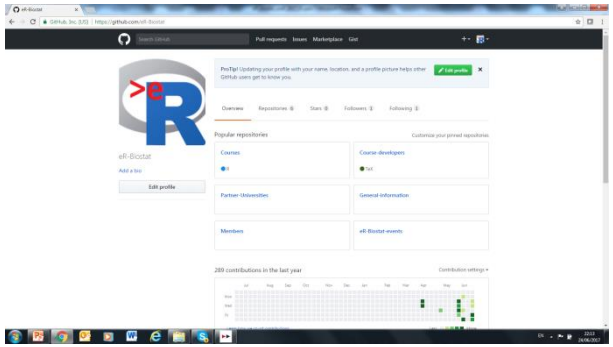
- Core (II):
  - Longitudinal data analysis.
  - Multivariate analysis.
  - Bayesian analysis.
  - Resampling based methods.
  - More…

July 2019

We a community

The community online:

GitHub



https://github.com/eR-Biostat

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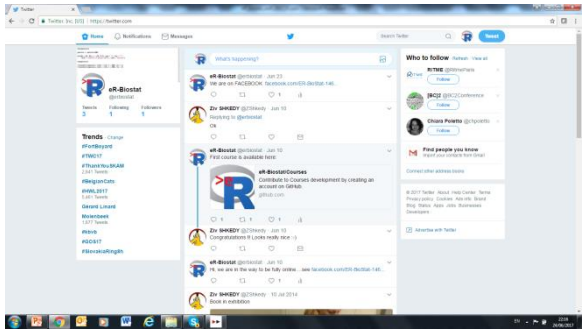


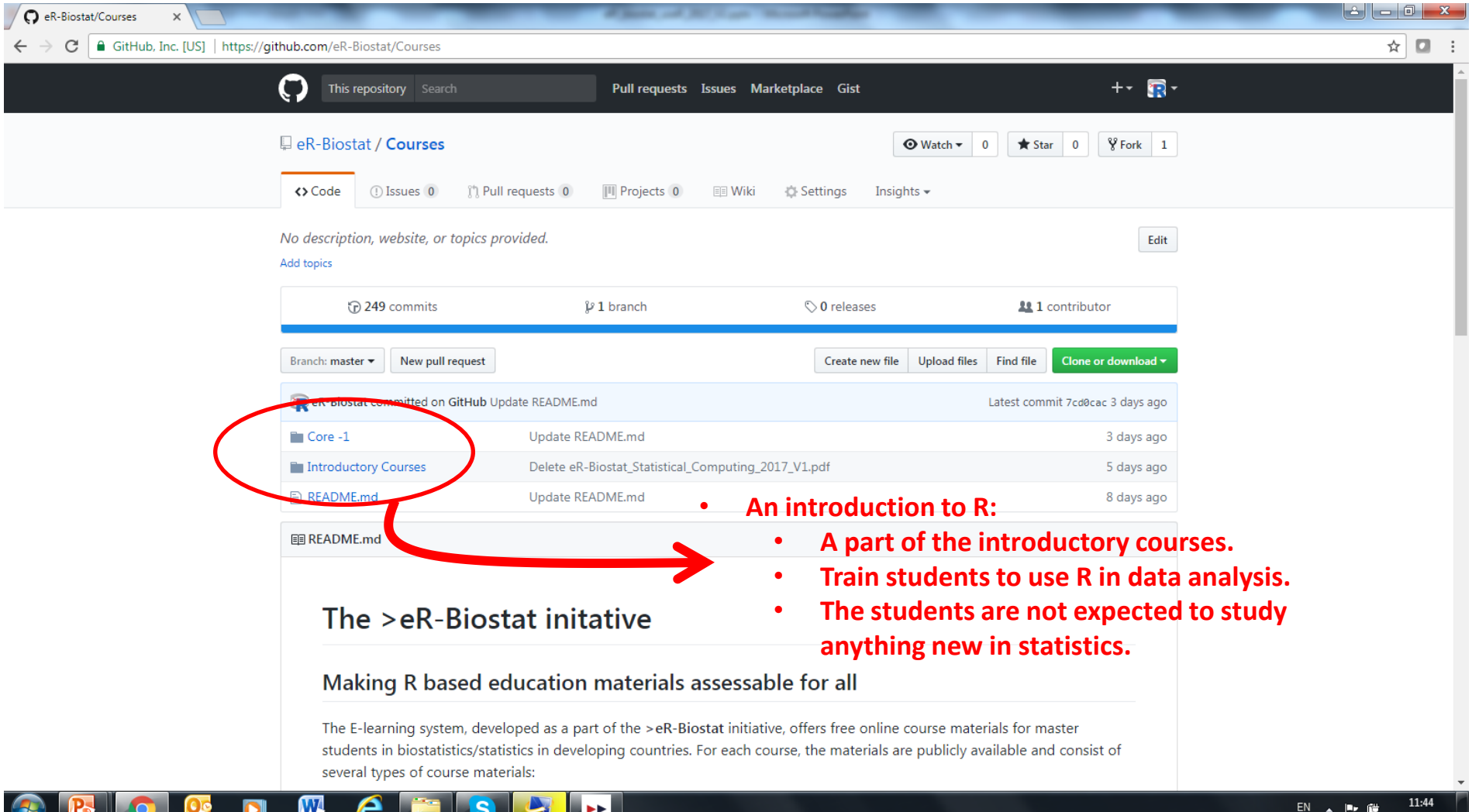
@erbiostat

- GitHub page with course materials .
- Information about activities.

- Communication teachers/students in the south.
- Information about course materials.
- Information about activities.

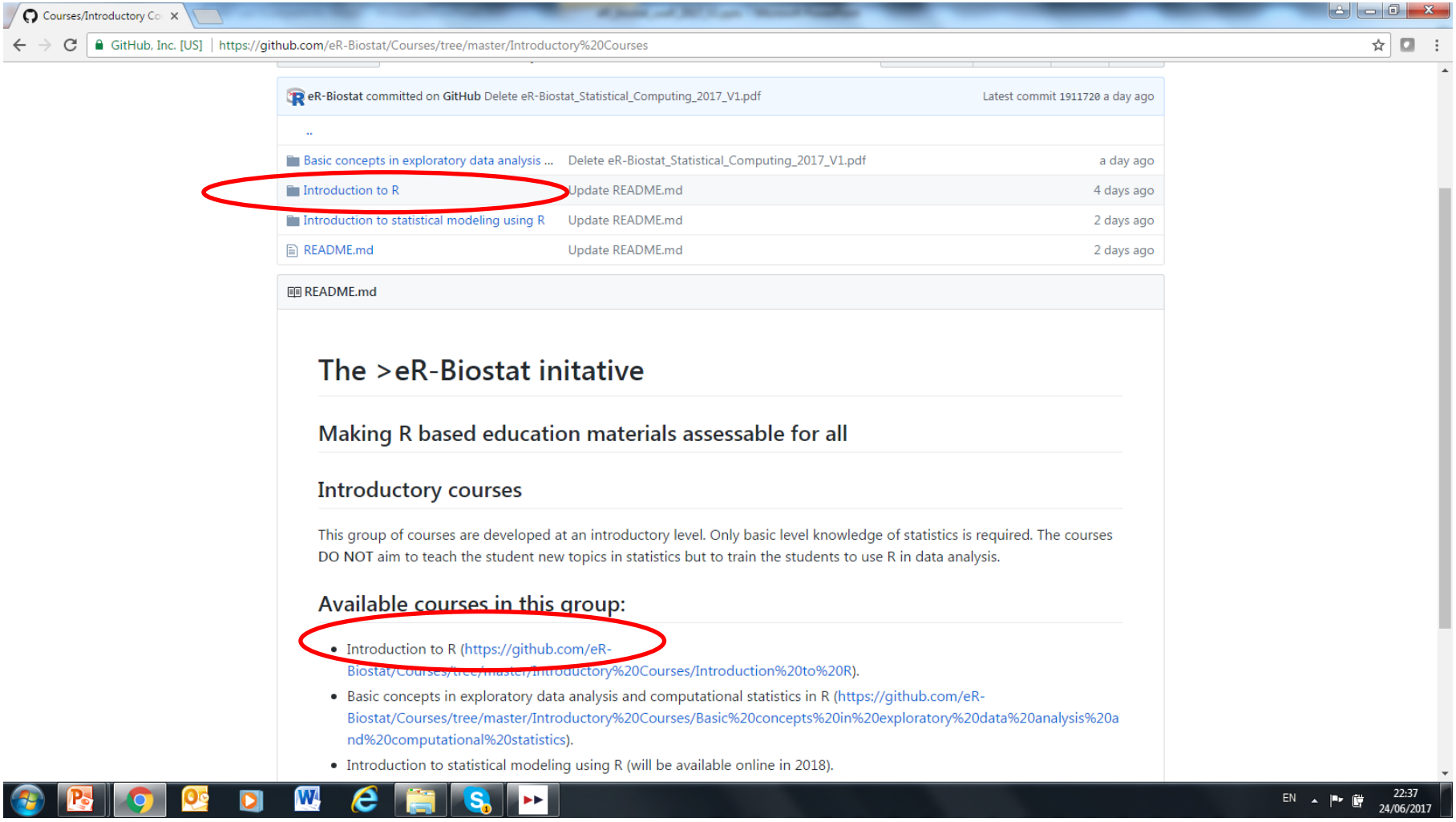
Example of a course: An introduction to R

- Online course materials :



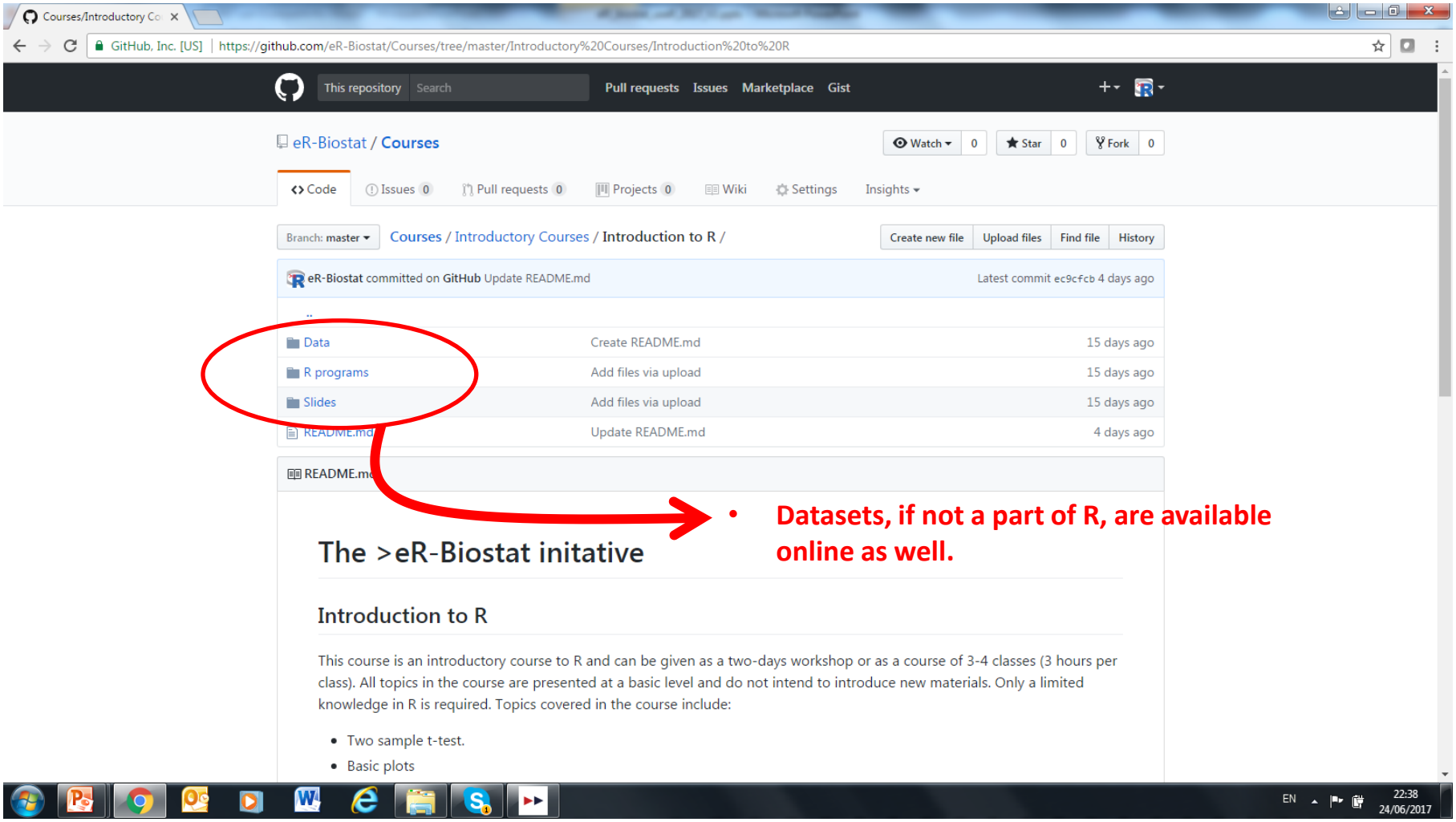
Example of a course: An introduction to R

- A part of the introductory courses:



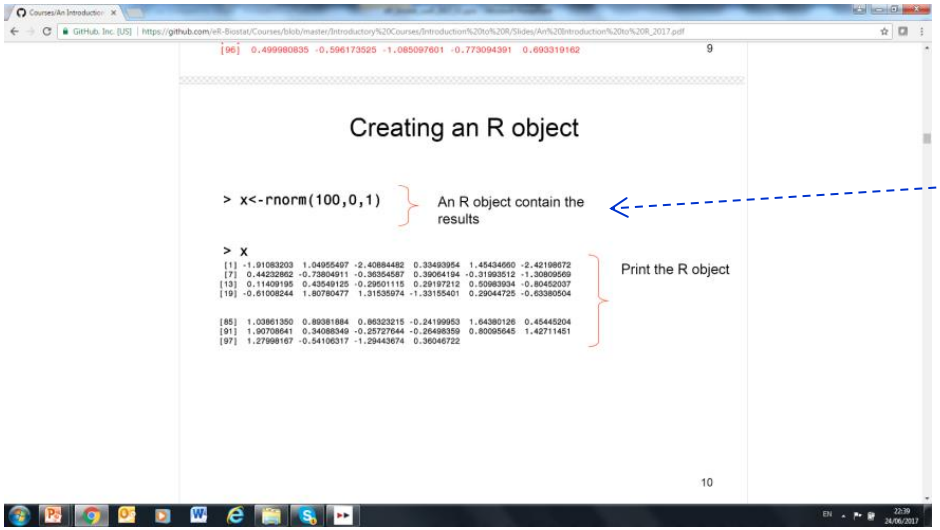
Example of a course: An introduction to R

- Online course materials :

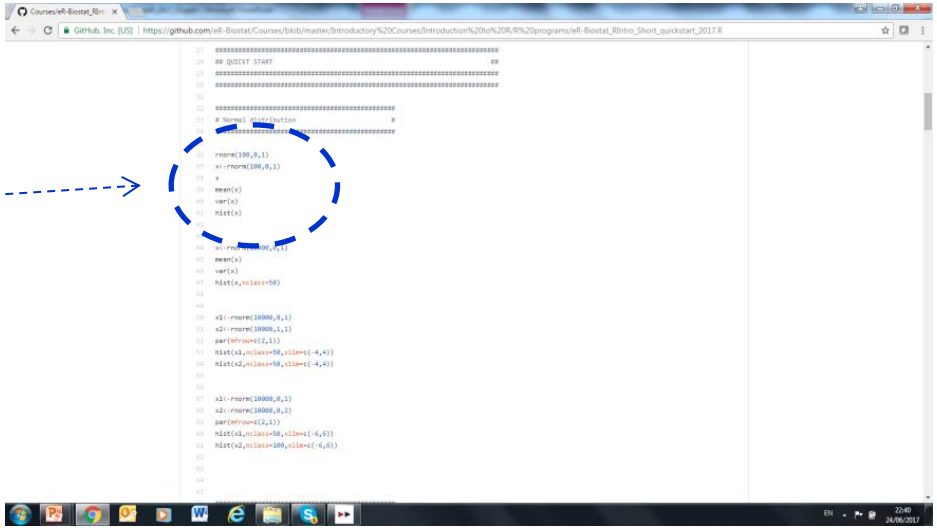


An introduction to R: slides and R program

Example of a Slide



R program

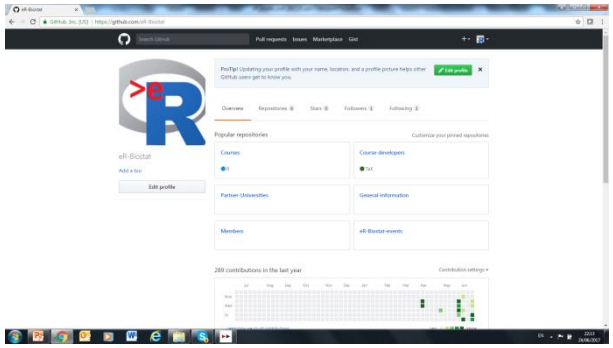


- All materials in the slides are reproducible using the code in the program.

Usage of courses materials

The community online:

GitHub



https://github.com/eR-Biostat

- GitHub page with course materials .
- Information about activities.

- Accessible to everybody.
- Independent usage of course materials by academic staff in the south.
- Taring workshops.

Courses materials for core courses

- For the core courses:
  - Core (I):
    - Linear models.
    - GLM.
    - Non Parametric.
    - Survival analysis.
  - Core (II):
    - Longitudinal data analysis.
    - Multivariate analysis.
    - Bayesian analysis.
    - Resampling based methods.
    - More…

- Online materials include:
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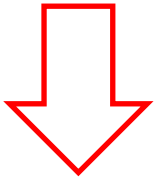

To setup the course level

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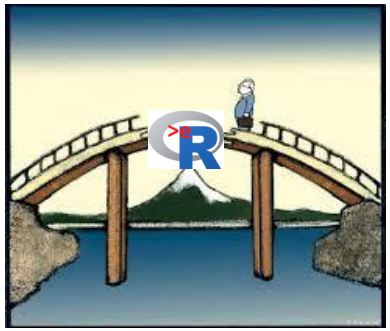
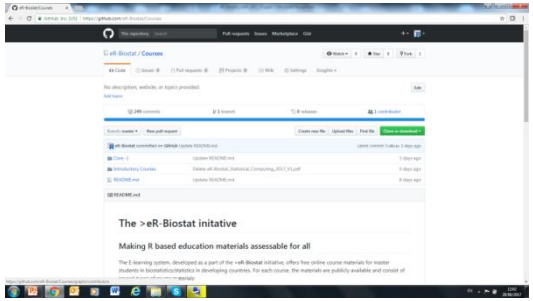
- Capacity building in statistics education (at a master level) via community building.
- Target departments, i.e. master programs.

Credit courses as a part of the curriculum of the master program in the south.

In the long run: Independent usage and NOT short courses format.



>eR-Biostat courses

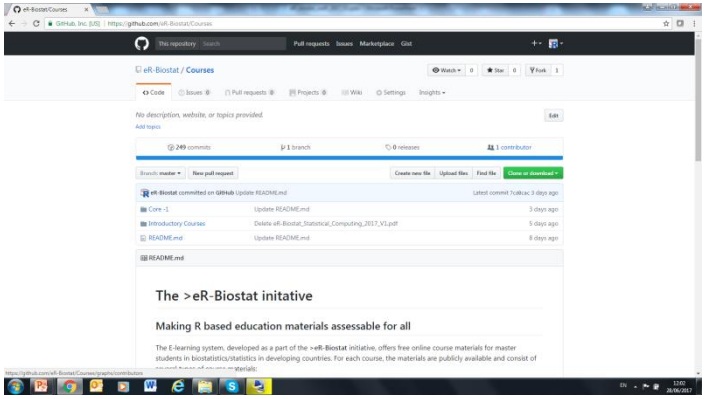


Introductory courses.
Linear models.
GLM.
Non Parametric.
Survival analysis.
Longitudinal data analysis.
Multivariate analysis.
Bayesian analysis.
More…

We >eR a community

- Partner universities in the south:
- Gondar University, Ethiopia:
  - Master in Biostatistics.
- University of South Africa (UNISA):
  - Trajectory in Biostatistics (as a part of the master).
- ….

GitHub



- Training events: >eR-Biostat workshops in partner universities (for both students and academic staff).

>eR-Biostat events

- Enlarge the collaboration network to other universities.
- Training workshops in the south for both students and teachers in academic year 2017/2018:

  - >eR-Biostat workshop in Gondar University, Ethiopia, August/September 2017.
  - >eR-Biostat workshop in Jomo Kenyatta University, Kenya, 02/10/2017-05/10/2017.
  - >eR-Biostat linear models course in Gondar University, Ethiopia, November/December, 2017.
  - >eR-Biostat workshop in Ghana, Spring, 2018.
  - >eR-Biostat workshop in Ethiopia, Spring, 2018.
  - ESPOL University, Ecuador, April, 2018.

We  a community

So what do we want from you ?

We  a community

So what do we want from you ?

- Join the community and contribute a course !!!
  - Course at a master level.
  - Slides: one slide per page.....so it is ready for use in class.
  - R programs for examples etc…
  - Links to books if available online.

- Interested to teach a course in Ethiopia (Spring 2018) ?
- Send us an email:

erbiostat@gmail.com

The >eR-Biostat initative

E-learning system using R

Biostatistics

Thank you veRy much !!

Visit us on Facebook ER-BioStat

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