

Data Management, Programming and Graphics with the R language

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Readme

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Introduction

Outline

- Introduction
 - Who are we (“we”=teachers & students)
 - Why are we here (Why learn R?)
- How will we proceed: Methodology
- HW Data Science approach to using R
- References & Resources

Who are we (1): The Statistics and Bioinformatics Unit

www.ueb.vhir.org

Welcome to VHIR's Statistics and Bioinformatics Unit

Who we are

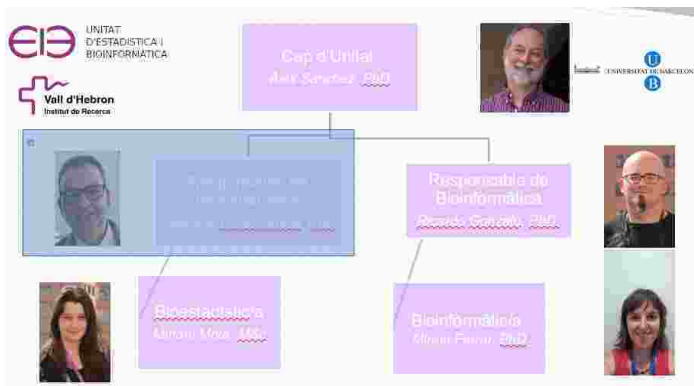
The Statistics and Bioinformatics Unit (UEB-USMB) is a service unit from the Scientific Support Area of the Vall d'Hebron Research Institute (VHIR - www.vhir.org)

The UEB was created in 2006 within the Research Institute of the Hospital Vall d'Hebron in order to promote the use and development of modern statistical and bioinformatics resources on research performed in its environment.



Nowadays, the Statistics and Bioinformatics Unit includes the former Support Unit in Methodology for Biomedical Research (USMB) and is part of the Scientific and Technical Support Area of the Vall d'Hebron Research Institute, has the mission to provide expert advice, services and training for clinical and biomedical research.

Who are we (2): Teachers



Who are we (3): The GRBio Research group

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$$X_i + \beta_j X_j$$

$$h(t) = h_0(t) \exp(\dots)$$

Welcome to the GRBIO website!

Our research group has expertise in **Biostatistics** and **Bioinformatics**; mainly: Survival Analysis, Clinical Trials and Biostatistical Methods for Integrative Analysis of Omics Data. Visit our web to see our activities, publications and statistical tools.

Applications for PhD studies are welcomed.

News

GRBIO: Concessió de l'ajut per donar suport a les activitats del grup de recerca (SGR 2017-2019) Sep 29, 2018

Proposal courses: ISCB 2019 Sep 28, 2018

JOB: Setrayne Health! Jan 17 2018

Twitter

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GRBIO RMarkus

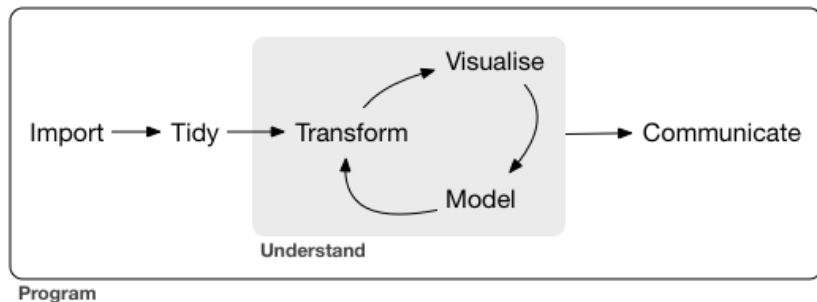
BCAM @BCAMBio @Zorionak @darszmit 🏆🏆🏆

Oct 5, 2018

Why learn R

- Most people in most jobs have to *manage* information in their every day work.
- “Managing” may mean different things such as:
 - *retrieving*
 - *manipulating*
 - *visualizing*
 - *analyzing*
 - *reporting*
- R is a powerful tool that can be used to facilitate, improve or automate tasks such as those described above.

Hadley Wickam's approach to learning and applying Data Science



Your turn

- Provide examples of informations you may wish to manage
- Describe briefly
 - what this information is about
 - how it is stored
 - what you may wish to do with it
 - Transformations
 - Computations
 - Reports

How we will work

- Mastering R requires as many other disciplines
 - ❶ Time
 - ❷ Study, and
 - ❸ Practice.
- Our lectures will have the following structure (all but the first)
 - 1st part: Discuss the work you have done during the week
 - 2nd part: We introduce a few new ideas
 - 3rd part: Practice exercises and start working on the case study suggested/your data.

Resources and references

- There is a huge variety of resources to learn R, books, tutorials, free online courses, etc.
- This course is based on the book Data Science for R.
- Other interesting books
 - Using R and RStudio for Data Management, Statistical Analysis, and Graphics, 2nd edition
- Online courses
 - Coursera's Data Science Specialization
- A list of R tutorials and courses