ONLINE COURSE

Intensive course on experimental design and biostatistics

FRIDAY
SEPTEMBER 3, 2021
FROM 09:00 TO 17:00 CEST
&
FRIDAY SEPTEMBER 17, 2021
FROM 09:00 TO 12:15 CEST
09:00 - 09:30  Welcome and sharing of issues
Marcel GYGER - Fondazione Guido Bernardini
Frédéric Schütz - Swiss Institute of Bioinformatics

09:30 - 10:30  Research Design
Confounding factors
What is a good experiment?

10:30 - 10:45  Coffee break

10:45 - 12:15  Research Design (continued)
Randomization
Blinding
Defining outcomes and endpoints

12:15 - 13:30  Lunch

13:30 - 15:00  Hypothesis tests
How to select your statistical test?
One and two-sided tests.
Pitfalls and caveats in hypothesis testing

15:00 - 15:15  Coffee break

15:15 - 16:30  Hypothesis tests
Multiple testing and p-hacking
Student t-test
ANOVA

16:30 - 17:00  Questions and answers of the session of the day

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09:00 - 10:30  How to calculate the «right» sample size
Power calculation
Calculating power using simulations
Post-hoc power calculation

10:45 - 12:00  Coffee break

12:00 - 12:15  Questions and answers of the session of the day

13:00 - 16:30  Experimental design illustrated by practical examples:
Randomized, blinded, controlled experiments
Formal experimental design:
Completely randomized
Randomized complete block
Factorial design
Examples, advantages and limitations

15:15 - 16:30  Hypothesis tests
Multiple testing and p-hacking
Student t-test
ANOVA

16:30 - 17:00  Questions and answers of the session of the day
Currently, the scientific literature is critical of the translatability of “in vivo” research results and of the reproducibility of research conducted with animals. There are certainly solutions on what should be done to improve the translatability and reproducibility of animal experiments. Among the solutions, statistics and experimental design play a central role to reach better translatability and reproducibility, in addition to contribute to the Reduction arm of the ThreeRs. This workshop addresses the central question of how to design your experiments and which test to perform given your specific research questions. This course offers lectures, exercises and discussions on these topics. The course is aimed at PhD students, postdocs, researchers, lab animal scientists and technicians, and members of Animal Welfare Bodies.

**Scientific Committee and Faculty**

**Marcel Gyger** - Fondazione Guido Bernardini  
**Frédéric Schütz** - Swiss Institute of Bioinformatics

**Registration on the FGB website:**  
[www.fondazioneguidobernardini.org](http://www.fondazioneguidobernardini.org)

**Registration fee:**  
125,00 euro + 22%VAT rate when applicable