BIO-449

Understanding statistics and experimental design

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Cursus	Sem.	Type
Civil & Environmental Engineering		Opt.
Computational and Quantitative Biology		Opt.
Electrical Engineering		Opt.
Life Sciences Engineering	MA1, MA3	Opt.
Neuro-X minor	H	Opt.
Neuro-X	MA1, MA3	Opt.
Neuroscience		Opt.

Language of teaching	English
Credits	4
Session	Winter
Semester	Fall
Exam	Written
Workload	120h
Weeks	14
Hours	**4 weekly**
Courses	2 weekly
Exercises	2 weekly
Number of positions	

Summary

This course is neither an introduction to the mathematics of statistics nor an introduction to a statistics program such as R. The aim of the course is to understand statistics from its experimental design and to avoid common pitfalls of statistical reasoning. There is space to discuss ongoing work.

Content

- Sensitivity and Bias
- Statistical Power
- Bayes Theorem and Odds Ratio
- What the t-test measures
- Classical statistical tests
- Experimental design
- Fraud and misconduct of statistics

Assessment methods

written exam

Resources

Moodle Link

- https://go.epfl.ch/BIO-449