

Course title	Biostatistics for non-statisticians: good practices, misuse and pitfalls.
Organizer(s)	Romain-Daniel Gosselin, Biotelligences LLC
	1 ECTS
Summary	The course aims to explain the importance of biostatistics for science reproducibility/reliability and teach good practices. The lectures are tailored to biologists and concentrate on logic thinking behind biostatistics. Particular emphasis will be placed on experimental design (power, independence, randomization), analysis (multiple comparisons, repeated measures, limitations of p-values, choosing the appropriate tests) and presentation (graphical display, errors, principal information to disclose).
Course schedule and location	<ul style="list-style-type: none"> • January 12, 13, 14 and 21 from 9-11h (Petit Auditoire, DNF-UNIL, Rue du Bugnon 9 (first floor), Lausanne) • January 15 from 9-11h (Salle APP, DNF-UNIL, Rue du Bugnon 9 (ground floor left), Lausanne)
Location	Salle APP, DNF-UNIL, Rue du Bugnon 9 (ground floor left), Lausanne
Content of course sessions	<p>Session 1: Biostatistics: why and when?</p> <ul style="list-style-type: none"> • A short (and digestible) introduction to biostatistics • Statistical inference: testing an hypothesis • Statistical design: power, independence of variables, randomization <p>Session 2: Analysis</p> <ul style="list-style-type: none"> • Selection of statistical tests • Parametric vs. non-parametric tests • Multiple comparisons: ANOVA and beyond • Repeated measures • The problem of p-values <p>Session 3: Data presentation</p> <ul style="list-style-type: none"> • Graphical display • Error-bars: <i>the dos and don'ts</i> • Which information to disclose? <p>Session 4: Biostatistics in neuroscience, an overview</p> <ul style="list-style-type: none"> • Molecular neuroscience • Neuropharmacology • Behavioral neuroscience • Electrophysiology <p>Session 5: Evaluation and conclusion</p> <ul style="list-style-type: none"> • Presentation slot (see Evaluation paragraph) • Short conclusion: forget p-values! Introduction to the New Statistics
Evaluation	Groups of 3-4 students will have to critically analyze the statistics displayed in an article given by the organizer. The groups will have one week to perform the analysis (between sessions 4 and 5). During the "presentation slot" (session 4) the groups will present their analysis (10 minutes oral presentation followed by 5 minutes of questions). A "statistical review form", corresponding to the written counterpart of the presentation, will have to be returned to the organizer at the beginning of session 5.

Registration

The course is limited to 20 participants. Register until October 24, 2014 by writing a mail to Indscourses@gmail.com (with your supervisor in copy) and stating the course title as subject.