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## Two Days Course – Statistics with NCSS

Wednesday 09.10.2019 and Thursday 10.10.2019  
09:15 – 12:15 and 13:15 – 17:00 h

Location: Mikroskopiersaal Anatomie, Länggassstr. 122

### Lecturers from VPH Institute, Vetsuisse Bern

- Ideal for anyone who wants to formulate hypothesis, analyze data and interpret results
- Ideal also to refresh statistical knowledge learned some time ago
- NCSS 2 years license is provided (spreadsheet based, menu-driven, easy to use statistical software package). The NCSS installation requires local administrator rights
- Participants should bring along a Laptop PC with XP/Vista/Win7. Two extra laptops are available.
- Mac & Linux Users: A full Windows emulation is required (which might imply extra costs, Windows license is required) <http://www.ncss.com/support/windows-on-a-mac>
- Course fees
  - Individuals from VPHI and Swiss Federal Food Safety and Veterinary Office (BLV): free of charge
  - Students and researchers from the Vetsuisse Faculty (BE, ZH) and affiliated institutions: 50 SFr.
  - External participants: 100 SFr.

For students and researchers of the Vetsuisse Faculty: the internal reference number of your project is needed for billing purposes. If in doubt, please contact your secretary before registering. The registration is only valid with the internal reference number of your project. **The registration is binding.** Full refund is only possible for cancellations 10 days before the start of the course.

<http://www.vphibern.ch/limesurvey/index.php/792158?lang=en>

For additional information on the course or registration process please contact:

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## **Course topics**

### ***Module 1 - Data import, data management***

- Learning objectives
- Data preparation in Excel or Text (ASCII, CSV formats), variable coding, missing values
  - Types of data (continuous or numerical; categorical or binary data)
  - Importing data (bases) into NCSS (**File open, import, save, export**)
  - Data management, data merging, creating new variables, variable recoding and transformations in NCSS (**Data sort, recode, transform, recalc**)

### ***Module 2 – Descriptive statistics, hypothesis testing and simple tests***

- Learning objectives
- Principles of hypothesis testing. Outcome variables and explanatory variables
  - Identification of the correct statistical test, assumptions. Difference between independent and dependent observations
  - Descriptive statistics: frequencies (2x2 contingency tables), histogram, means and variances, various graphs & box plots (**Analysis / descriptive statistics**)
  - Tests for continuous outcomes (t-tests, Mann-Whitney U)
  - Tests for binary outcomes (Chi2 tests, Mantel-Haenszel- test)

### ***Module 3 – Analysis of continuous and binary outcomes***

- Learning objectives
- Comparison of means/medians between groups (**Analysis / ANOVA / One-way Analysis of Variance, Kruskal-Wallis test**)
  - Correlation between continuous variables (**Analysis / Correlation / Correlation Matrix**)
  - Linear Regression, Analysis of Residuals (**Analysis / Regression / Linear Regression**)
  - Analysis of binary outcomes (**Analysis / Regression / Logistic Regression**)

### ***Module 4 – Analysis of dependent data (optional, depending on time and interest)***

- Learning objectives
- Experimental settings with repeated measures (**Analysis / ANOVA / Repeated-measures ANOVA**)
  - Analysis of matched binary outcomes (**Analysis / Regression / Logistic Regression / Conditional Logistic Regression**)

Recommended books (on which most exercises are based): Hüsler & Zimmermann "Statistische Prinzipien..." 4. Auflage 2006, and Dawson & Trapp "Basic & Clinical Biostatistics" 4th Ed. 2004. More details on the course schedule etc. will be provided for registered course participants in the week before the course.