Biostatistics for non-statisticians: good practices, misuse and pitfalls.

Organizer(s)  Romain-Daniel Gosselin, Precision Medicine Unit, CHUV

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: no heavy mathematics. Particular emphasis will be placed on caveats about misconceptions and misuses in experimental design, analysis and disclosure.

Schedule, location and registration

- **Session 1** – November 3, 2023: 9h30 – 13h
- **Session 2** – November 10, 2023: 9h30 – 13h
- **Session 3** – November 17, 2023: 9h30 – 13h

The course takes place in Salle LIPARI, Rue Bugnon 27 (first floor, turn to right after stairs). See an access plan here to find your way. Building BU 7 is just opposite the metro stop “CHUV” of the M2.

For registration to the course, please write to Ulrike.toepel@unil.ch. The course is limited to 16 participants; first come – first served …

Content of course sessions

- **Session 1:**
  - General introduction, raw concepts
  - Variation, estimators and estimates: a digestible introduction to frequentist inference
  - Research design beyond sample size
  - Sample size: not too few and not too many

- **Session 2:**
  - Choosing a test
  - (Mis)conceptions and (mis)use of p-values
  - Caveats with multiple comparisons

- **Session 3:**
  - Correlation and the (linear) regression maze
  - Stop the “bar graph and SEM” galore: chose a correct display
  - How not to sweep outliers and missing data under the rug

Evaluation  Participation to the course; collective and potentially group-organized problem-based learning (PBL) with made-up examples during the course. Group critical reviewing of published articles.