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** – March 6, 2024: 9h30 – 13h
- **Session 2** – March 7, 2024: 9h30 – 13h
- **Session 3** – March 8, 2024: 9h30 – 13h

The course takes place in **the Petit Auditoire, Rue Bugnon 9** (first floor). See an [access plan here](#) to find your way. Building BU 9 is only a short walk from metro stop "OURS" 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
  - Planning a research: beyond sample size
  - Sample size: not too few and not too many

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

- **Session 3:**

  - Correlation, bias, and regression
  - (linear) Regression: an introduction
  - The assumption of normality: debunk
  - Overview of descriptive statistics and data visualization

Evaluation   Participation to the course and the made-up examples, exercises, practical activities, quizzes, polls… during the lecture.