Bayesian Biostatistics (12385-01)

4 ECTS

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Methods: Lectures, exercises, computer practicals and project work

Assessment: Assignments, written exam

Time: to be announced

Place: every spring semester, check time & place in the SS-course directory

Remark: The course is available for students with a strong mathematics/statistics background, who have attended Statistical Modelling and received a mark above 5.0.

Workload: 120 hours

- Lectures (contact hours): 14 lessons of 2 hours = 28 hours
- Computer Practicals and Exercises: 14 practicals of 2 hour = 28 hours
- Reading/study/assessment: 62 hours

Objectives: To understand, apply and interpret models for independent data for different types of outcomes; to understand, apply and interpret models for correlated (in space and time) data; to identify and model different sources of variation; to implement the above models in the statistical software WINBUGS.

Content:

- Probability theory
- Regression models for continuous, binary, polytomous and count independent data
- Regression models for correlated data
- Overdispersion
  - Analysis longitudinal data
  - Analysis of spatial data
  - Analysis of temporal data
- Survival models
- Multi-level models
- Meta-analysis of clinical trials
- Modelling diagnostic error

Statistical inference will be taught using the frequentist and Bayesian approaches