

- Faculté des sciences
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Bayesian statistics 1 (3ST2018)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
Master en statistique	Cours: 2 ph	Voir ci-dessous	3

ph=période hebdomadaire, pg=période globale, j=jour, dj=demi-jour, h=heure, min=minute

Période d'enseignement:

- Semestre Printemps

Equipe enseignante:

Dr. Clément Chevalier

Objectifs:

By the end of the lecture, the student will be familiar with the basic principles in Bayesian statistics. The lecture will put emphasis on univariate models.

Contenu:

Basics of Bayes formula and motivation/comparison to frequentist approaches. Discrete priors. Continuous priors (conjugacy, Jeffrey's prior, improper priors). Computations with the posterior : Monte-Carlo integration and rejection sampling.

Forme de l'évaluation:

A) First attempt

CA graded: written 2 hours exam during the last week of the lecture.

B) Second attempt

Unless the professor and the student both agree on a different date, the reexamination will take place at the same time as the examination for the students of the following year.

The student will pass the 2 hour written examination under the same conditions as the ones which apply to the students of the following year.

This includes possible changes regarding the program of the lecture.

Documentation:

C. Robert (2007). The bayesian choice: From Decision-Theoretic Foundations to Computational Implementation. Springer Texts in Statistics

A. Gelman, J. B. Carlin, H. S. Stern, D. B. Rubin (2003). Bayesian Data Analysis, second edition, CRC Press.

P Lee (2012) Bayesian Statistics: An Introduction. Fourth Edition

C. Robert, Casella, C. (2009). Introducing Monte Carlo Methods with R. Springer-Verlag, New York.

Pré-requis:

inferential statistics, probability, good R programming, notions on maximum likelihood estimation

Forme de l'enseignement:

- 3 ECTS credits

- First half of Spring Semester

- Compulsory course for the master in statistics

- Learning activities: 4 hours lectures/exercise series per week.