Bayesian Methods in Health Economics: Day 2 Practical

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(with thanks to Gianluca Baio, Chris Jackson, Nicky J. Welton, Mark Strong, Anna Heath)
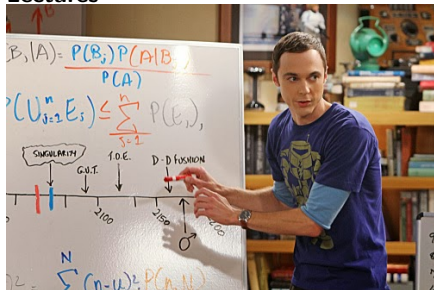
9-10th June 2022

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Preliminaries

- UCL was rated 2nd in the UK for research power in the Research Excellence Framework 2021
- UCL is ranked 8th in the 2022 QS World University Rankings
- The Department of Statistical Science has played a major role in the development of the subject ever since its foundation in 1911 as the Department of Applied Statistics

Lectures

- Introduction to *Health economic evaluation*
  - ▶ ICER, EIB
  - ▶ Cost-effectiveness plane, CEAC

- Introduction to *Bayesian analysis*
  - ▶ MCMC methods
  - ▶ Using BUGS (and R)

- Introduction to *Health economics modelling*
  - ▶ Decision trees
  - ▶ Markov models

Computer practicals

- Emphasis on practical examples
  - BUGS analysis
  - R/BUGS and BCEA

Timetable

Day 1
- ▶ 9:00-9:10 Welcome and introductions
- ▶ 9:10-10:00 Introduction to health economic evaluations
- ▶ 10:00-11:00 Cost and cost-utility data
- ▶ BREAK
- ▶ 11:30-12:30 Model error and structural uncertainty
- ▶ LUNCH
- ▶ 1:30-2:30 Decision trees in HEE
- ▶ 2:30-3:30 Markov models in HEE
- ▶ BREAK
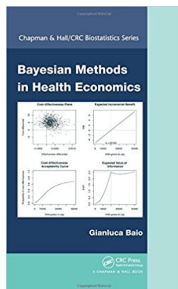- ▶ 4:00-5:00 Review and wrap up

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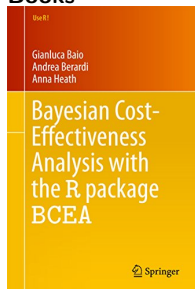- ▶ 4:00-5:00 Review and wrap up

Day 2
- ▶ Welcome and introductions
- ▶ Building a basic decision tree in R
- ▶ Building more complex tree in R
- ▶ BREAK
- ▶ 11:30-12:30 Building a simple Markov model in R
- ▶ LUNCH
- ▶ 1:30-2:30 Building a more complex Markov model in R
- ▶ 2:30-3:30 Sensitivity analysis
- ▶ BREAK
- ▶ 4:00-5:00 Visualising cost-effectiveness analyses with the BCEA package
- ▶ 5:00 Wrap up and thanks

Books

- This course is only a small part of an *annual week-long summer school*
  - ▶ this year in UNIL, Université de Lausanne, Lausanne (Switzerland)
  - ▶ usually in Florence, Italy
- Several books available
- Edition two of BCEA book in the pipeline and a Health Economic in R book close to being finished!