Applied Bayesian Methods (STAT0031)

**Description**
This module aims to introduce the Bayesian approach to statistical inference, to develop relevant theory, methodology and computational techniques for its implementation and to develop basic skills in use of the WinBUGS software for Bayesian modelling. It is primarily intended for students registered on the Masters degree programmes offered by the Department of Statistical Science, or jointly with other departments.

On successful completion of the module, a student should be able to give an account of the underlying principles of Bayesian inference, and contrast these with those of other schools of inference; manipulate probability formulae to derive posterior and predictive distributions; perform conjugate prior-to-posterior analysis for simple binomial, Poisson and normal models; analyse these and more complex normal models, using priors representing great prior uncertainty; use hierarchical and graphical modelling to represent and analyse complex systems; describe and implement Gibbs sampling methods for estimating posterior quantities; and use WinBUGS software to estimate complex Bayesian models.

**Key information**
- **Year**: 2019/20
- **Credit value**: 15 (150 study hours)
- **Delivery**: PGT L7, Campus-based
- **Reading List**: [View on UCL website](https://www.ucl.ac.uk)
- **Tutor**: Dr Jinghao Xue
- **Term**: Term 2
- **Timetable**: [View on UCL website](https://www.ucl.ac.uk)

**Assessment**
- Written examination (main exam period): 90%
- Coursework: 10%

**Find out more**
For more information about the department, programmes, relevant open days and to browse other modules, visit [ucl.ac.uk](https://www.ucl.ac.uk)
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**Disclaimer**: All information correct as of June 2019. Please note that aspects of the module may be subject to change. UCL will make best efforts to inform applicants of major changes.