

Online course

Essentials of Bayesian Networks in Forensic Science

Target audience

Forensic science practitioners, chief forensic scientists or coordinators – including reporting officers, forensic geneticists, lawyers, risk management analysts – having a University degree (at least BSc) or an equivalent degree of a higher education programme

Dates and schedule

The course lasts 6 months with a workload per week of :

- 3 hours on the online platform,
- 1.5 to 2 hours of personal work.

The course is offered on a yearly basis.

Certification

- Certificate of participation
- 5 ECTS credits

Organisation

Faculty of Law, Criminal Justice and Public Administration, University of Lausanne, Switzerland

Introduction

Bayesian networks (BN) are innovative and are gaining more and more widespread use within many professional branches. This online course gives a comprehensive view of the use of BNs for the probabilistic evaluation of scientific evidence in forensic science applications. It provides students with room for an incremental and in-depth study of the various aspects that a solid mastery of BNs in practical applications demands.

The course content is based on the use of likelihood ratios, an approach that is supported by the *International Society of Forensic Genetics*, the *European Network of Forensic Science Institutes* and the *Association of Forensic Science Providers*.

Objectives

- To acquire solid knowledge and understanding of the principles of BNs
- To master methodology in graphical inference modelling using specialised BN software
- To develop and apply standard networks that can be implemented in current software systems, and that form the core models which participants can transfer to their analysis of real cases from their own professional environment

Essentials of Bayesian Networks in Forensic Science

Register at Formation Continue UNIL-EPFL.

Registration form available at www.formation-continue-unil-epfl.ch

Registration

Send your CV and a duly filled in registration form to Formation Continue UNIL-EPFL.

Instructors

- Professor Franco Taroni
- Professor Christophe Champod
- Dr Alex Biedermann
- Dr Tacha Hicks

Consultants :

- Prof. Aitken
- Dr Evett

The instructors have theoretical and practical experience with evaluation and interpretation from laboratory to courtroom. They have published over the years numerous scholarly papers and textbooks on the subjects of evaluation and statistics in forensic science (Taroni et al., «*Bayesian networks and Probabilistic Inference in Forensic Science*», John Wiley & Sons, 2006)

Contacts

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Topics

INTRODUCTION TO EVALUATION OF SCIENTIFIC EVIDENCE AND BAYESIAN NETWORKS (BNs)

- Uncertainty and probability, principles of probabilistic scientific evidence interpretation, relevant propositions, the logic of BNs

EVALUATION USING BNs : GENERAL ISSUES

- Issues in one-trace transfer cases (match probabilities, relevance, error rates, multiple propositions), evidence with more than one component, scenarios with more than one stain, software functionalities

BNs FOR SELECTED TYPES OF SCIENTIFIC EVIDENCE

- DNA, fingerprints, shoe- and toolmarks, transfer evidence (glass, fibres, gunshot residues), drugs and arson

APPLICATIONS (CASE STUDIES)

- Application of BNs for case based probabilistic reasoning and scientific evidence assessment

COMBINATION OF EVIDENCE

- General issues and case studies

FURTHER ISSUES

- Database searching, sampling, introduction to decision theory (Bayesian decision networks), object-orientation



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