# *Curriculum vitae*

**Current position**

Franco Taroni (1965, Italian and Swiss), PhD, Full Professor of Forensic Statistics at the Faculty of Law, Criminal Justice and Public Administration (FLCJPA), School of Criminal Justice (ESC), University of Lausanne (UNIL, Switzerland: www.unil.ch/esc), and regularly Invited Professor at the Faculty of Medicine and Dentistry, University of Strasbourg (France).

**Professional activities**

Development of a new academic field dedicated to inference and decision-making under conditions of uncertainty. The activities focus on proposing original solutions for managing scientific information in forensic science, legal medicine and the law.

**Education**

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| 2010 | 6-months sabbatical leave : Dept. of Statistics, University Cà Foscari of Venice, Italy (project : « Uncertainty about the true source - Likelihood ratio at the activity level », supported by the Swiss National Science Foundation, SNSF). |
| 1999-2000 | Series of courses at MSc level in Statistics at the Faculty of Economics (University of Neuchâtel, Switzerland). |
| 1996 | PhD in Forensic Science from the Faculty of Law (UNIL). |
| 1990-1992 | Series of courses at MSc level in Biochemistry at the Faculty of Medicine (UNIL). |
| 1990 | MSc in Forensic Science from the Faculty of Law (UNIL). |

**Positions**

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| Since 2010 | Full Professor of Forensic Statistics at the School of Criminal Justice of the Faculty of Law, Criminal Justice and Public Administration (FLCJPA, UNIL). |
| 2002 | Full-time Associate Professor (UNIL). |
| 2000 | Associate Professor (60%) at the FLCJPA (UNIL). |
| 1998-2002 | Research project management at the Institutes of Forensic Medicine of the Universities of Lausanne and Zürich (development of statistical models to assess DNA findings in forensic genetics). |
| 1997-1998 | EU-*Marie Curie Fellowship* (ERB-4001-GT-96-3536: *Forensic science, probabilities and the law: scientific evidence at trial).* Supervision of both MC Fellowships: Prof. Colin Aitken, University of Edinburgh (Dept. of Mathematics and Statistics). |
| 1996-1997 | EU-*Marie Curie Fellowship* (ERB-4001-GT-95-3876: *Probabilistic reasoning in the law).* |

**Teaching activities**

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| Since 2009 | Statistical data analysis - Bayesian statistics (MSc students in Forensic Science, Lausanne, and MSc students in Dentistry, Strasbourg), 28h/y. |
| Since 2007 | Scientific evidence at trial (BSc students in Forensic Science and MSc students in Law, Lausanne), 28h/y + exercices. |
| Since 2007 | Statistics for DNA evidence (MSc students in Forensic Science, Lausanne), 56h/y + exercices. |
| Since 2000 | Forensic statistics (BSc and MSc students in Forensic Science, Lausanne), 28h/y + exercices. |

The experience gained from 15 years of lecturing was further developed in a unique long-distance education project (e-learning). In February 2010, Franco Taroni created and developed (with Prof. C. Champod, Dr T. Hicks and Dr A. Biedermann) the 18 months e-learning course entitled *Statistics and the evaluation of forensic evidence*[1]. UNIL offers this unique and original course as a *Master of Advanced Studies*. Moreover, 3 new e-learning courses supported by the *International Society of Forensic Genetics,* the *European*

[1] http://www.formation-continue-unil-epfl.ch/statistics-evaluation-forensic-evidence-cas (20 ECTS, in the 5th edition).

*Networks of Forensic Science Institutes* and the *Association of Forensic Science Providers* have been developed in 2012 (*Essentials of DNA interpretation*[2]*, Essentials of Bayesian networks in forensic science*[3] and *Essentials of forensic interpretation*[4]).

**Professional Memberships**

Since 2008 International member of the 'Statistics *and the Law'* working group on scientific evidence evaluation of the *Royal Statistical Society,* London (In 2011, Franco Taroni was in charge of the 'Guidance for judges, lawyers, forensic scientists and expert witnesses on graphical models').

Since 2007 Member of the Research Commission of the *Foundation of the University of Lausanne.*

2007-2012 Member of the Research Commission of the *Swiss National Science Foundation* (SNSF).

2002-2008 Member of the Faculty Committee at UNIL.

2000-2001 Consultant on DNA evidence evaluation for the French Parlement: Rapport de l'Office Parlementaire d'Evaluation des Choix Scientifiques et Technologiques, Rapport Assemblée Nationale n.3121/Sénat n.364, Paris (2001).

**Representative publications**

Franco Taroni has authored 6 books (one translated into Spanish) and more than 100 peer-reviewed articles in scientific and law journals[5]. He is the co-author of the lead book on forensic statistics (Aitken and Taroni, 2004, Spanish translation in 2010) and the principal author of two books on the use of graphical probabilistic models (Bayesian networks) (Taroni *et al.,* 2006, 2nd ed. 2014) and of a book on a Bayesian decision data analysis (Taroni *et al.,* 2010). The latter two books point out a fruitful collaboration between forensic scientists, statisticians and a philosopher of science developing an area of research where interdisciplinarity plays a major role. These fields of knowledge have common features and co-operation between them may produce results that none of the disciplines could have produced separately. These books have been edited by John Wiley & Sons (Chichester, UK); they are the unique reference books for academics and practitioners in the administration of scientific evidence in Courts. Two books on forensic genetics have also been written (in French) in collaboration with a geneticist (Coquoz and Taroni, 2006, 3rd ed. 2013). Franco Taroni has regularly authored chapters in Encyclopaedias (in Forensic Sciences for Elsevier, Oxford, and in Criminology and Criminal Justice, Springer-Verlag, Heidelberg), legal and scientific books.

**Funding ID**

In the last two decades, Franco Taroni was awarded 24 grants from the *Swiss National Science Foundation* (SNSF)[6] for a total amount of ~ 2'000'000€, largely to support PhD and post-doc researchers.

**Other activities**

Franco Taroni's activities of research and dissemination influence practitioners and researchers at his home institution as well as in several partner organizations across Europe (i.e. Sweden, Belgium, Italy, France) and overseas (i.e. United States, Canada). He is continually solicited by these institutions in order to provide tailored training and instruction to forensic scientists on the introduction of knowledge and expertise on probabilistic inference modelling, applied to routine expert reporting in criminal proceedings (in particular Courts of Law)[7]. The worldwide First Certificate of Advanced Study on forensic evidence interpretation pursues the same purpose. Up until now, 6 of the 13 PhD students supervised by Franco Taroni have successfully obtained their degrees with honours under the scrutiny of (high-profile) international juries. These candidates have continued research and practice in their respective areas of proficiency. One of them was awarded a high-level Swiss prize for the quality of his thesis and he has recently been appointed as Professor in forensic science; two others obtained post-doc fellowships from the SNSF to pursue research in US (Dept. of Criminology, Law and Society at Irvine University and Dept. of Biostatistics at the University of Washington, Seattle, respectively). One has been employed at the National Institute of Standards and Technology (US Department of Commence). Another one was employed by French police as consultant in

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[2] http://www.formation-continue-unil-epfl.ch/essentials-dna-interpretation (5 ECTS, in the 4th edition).
[3] http://www.formation-continue-unil-epfl.ch/bayesian-networks-forensic-science (5 ECTS, in the 2nd edition).
[4] http://www.formation-continue-unil-epfl.ch/essentials-forensic-interpretation (5 ECTS, in the 2nd edition).
[5] http://www.unil.ch/unisciences/francotaroni
[6] see the personal SNSF homepage : http://p3.snf.ch/person-78068
[7] E.g., a workshop, entitled 'A guideline for reporting evaluative evidence in Court', aims at engaging practitioners in the implementation of the key concepts of the new 'European Network Forensic Sciences Institutes guideline for evaluative reporting in forensic science' elaborated by a team (including Franco Taroni) under a ENFSI grant 2010-2015 (7th European Academy of Forensic Science Conference, Prague (Czech Republic), 6-11.09.2015).

DNA (bacterial) evidence analysis and finally one collaborates with a high-technology company. Two candidates will be under examination at the end of 2015 and beginning of 2016; the first will be appointed as post-doc research fellow at the Northwestern University School of Law in Chicago as of April 2016, the second is working on a joint PhD with the Dept. of Mathematics at Leiden University.
More generally, Franco Taroni also contributes to fostering other scientists' ways of reasoning in evidence interpretation, notably within the *European Networks of Forensic Science Institutes* (ENFSI) and Institutes of Legal Medicine. This is shown by agreed guidance documents on acceptable inferential procedures for evidence evaluation: e.g., revised guidelines for the Swiss Legal Medicine Society (2014), which essentially incorporates outcomes of research and expertise and the new (2015) European (ENFSI) Guidelines.

**Memberships of scientific societies**
Royal Statistical Society, UK (since 2014); Société Suisse de Médecine Légale, Switzerland (since 1997); New York Academy of Sciences, USA (since 1995); Société Suisse de Droit Pénal, Switzerland (since 1993); Forensic Science Society, UK (since 1991); International Association of Identification, USA (since 1991).

## *Ten years track-record*

**Top 10 publications, as senior author** [H (Hirsch)-Index for papers only (Scopus, period 1996-2015): 20 (excluding self-citations: 17)] The major contributions in forensic statistics are related to topics on (1) *probabilistic models for evidence evaluation*, (2) *decision-making under uncertainty* and (3) *graphical probabilistic (decision) models (Bayesian (decision) networks)*.

- F. Taroni, S. Bozza, A. Biedermann, C. Aitken, Dismissal of the illusion of uncertainty in the assessment of a likelihood ratio (Discussion paper). *Law, Probability and Risk* (2015) available online.
- F. Taroni, R. Marquis, M. Schmittbuhl, A. Biedermann, A. Thiéry, S. Bozza, Bayes factor for investigative assessment of selected handwriting features. *Forensic Science International* 242 (2014) 266-273.
- F. Taroni, A. Biedermann, S. Bozza, J. Vuille, M. Augsburger, Toxic substances in blood: an analysis of current recommendations under a Bayesian (decision) approach. *Law, Probability and Risk* 13 (2014) 27-45.
- F. Taroni, A. Biedermann, S. Bozza, P. Garbolino, Uncertainty about the true source. A note on the likelihood ratio at the activity level. *Forensic Science International* 220 (2012) 173-179.
- F. Taroni, R. Marquis, M. Schmittbuhl, A. Biedermann, A. Thiéry, S. Bozza, The use of the likelihood ratio for evaluative and investigative purposes in comparative forensic handwriting examination. *Forensic Science International* 214 (2012) 189-194.
- S. Bozza, R. Marquis, M. Schmittbuhl, F. Taroni, Probabilistic evaluation of handwriting evidence: likelihood ratio for authorship. *Applied Statistics* 57 (2008) 329-341.
- F. Taroni, A. Biedermann, Inadequacies of posterior probabilities for the assessment of scientific evidence, *Law, Probability and Risk* 4 (2005) 89-114.
- F. Taroni, C. Aitken, P. Garbolino, De Finetti's subjectivism, the assessment of probabilities and the evaluation of evidence : a commentary for forensic scientist. *Science & Justice* 41 (2001) 145-150.
- F. Taroni, S. Bozza, A. Biedermann, Two items of evidence, no putative source: an inference problem in forensic intelligence. *Journal of Forensic Sciences* 51 (2006) 1350-1361.
- F. Taroni, S. Bozza, C. Aitken, Decision analysis in forensic science. *Journal of Forensic Sciences* 50 (2005) 894-905.

**Research monographs, book chapters (selection)**
*Books:*

- F. Taroni, A. Biedermann, S. Bozza, P. Garbolino, C. Aitken, Bayesian networks for probabilistic inference and decision analysis in forensic science 2nd Ed., John Wiley & Sons, Chichester (2014, pp. 443 + xxiv).
- R. Coquoz, J. Comte, D. Hall, T. Hicks, F. Taroni, Preuve par l'ADN – La génétique au service de la justice (3ème éd.). Presses Polytechniques et Universitaires Romandes, Lausanne (2013, pp. 457 + xi).
- F. Taroni, S. Bozza, A. Biedermann, P. Garbolino, C. Aitken, *Data analysis in forensic science: a Bayesian decision perspective*. John Wiley & Sons, Chichester (2010, pp.367 + xvii).
- F. Taroni, C. Aitken, P. Garbolino, A. Biedermann, *Bayesian networks and probabilistic inference in forensic science*. John Wiley & Sons, Chichester (2006, pp. 354 + xviii).

- R. Coquoz, F. Taroni, *Preuve par l'ADN – La génétique au service de la justice* (2ème éd.). Presses Polytechniques et Universitaires Romandes, Lausanne (2006, pp. 355 + xi).
- C. Aitken, F. Taroni, *Statistics and the evaluation of evidence for forensic scientist*. 2nd Ed., John Wiley & Sons, Chichester (2004, pp. 509 + xxx), translated book[8].

*Book chapters:*
- F. Taroni, A. Biedermann, Probability and inference in forensic science. In: G.J.N. Bruinsma and D.L. Weisburd (Eds), *Encyclopaedia of Criminology and Criminal Justice*, Springer-Verlag GmbH, Heidelberg (2014) 3947-3957.
- J. Vuille, A. Biedermann, F. Taroni, The importance of having a logical framework for expert conclusions in forensic DNA profiling: illustrations from the Amanda Knox case. In: C.R. Huff, M. Killias (Eds), *Wrongful convictions and miscarriages of justice: causes and remedies in North America and European criminal justice systems*. Routledge Chapman & Hall, New York (2013) 137-159.
- Taroni F., and Biedermann A. (2013) Bayesian Networks. In: J.A. Siegel, P.J. Saukko (Eds), *Encyclopedia of Forensic Sciences*, Second Edition, Academic Press, Waltham vol. 3 (2013) 351-356.
- F. Taroni, Bayesian networks. In: A. Jamieson, A. Moenssens (Eds), *Wiley Encyclopedia of Forensic Science*, John Wiley & Sons Inc., Chichester (2008) 276-281.
- F. Taroni, A. Biedermann, Inference problems in forensic science. In: O. Pourret, P. Naïm and B. G. Marcot B.G. (Eds), *Bayesian belief networks: a practical guide to applications*, John Wiley & Sons, Chichester (2008) 113-126.

**Invited presentations (selection)**
- Leiden (The Netherlands) 19-22.08.2014. *Analysing convergent and conflicting evidence in forensic scenarios*. The 9th International Conference on Forensic Inference and Statistics.
- Dresden (Germany) 11-12.06.2013. *What does the Bayesian approach do and not do?* Bayesian approach in GSR investigation. European Network of Forensic Science Institutes Annual Meeting.
- The Hague (The Netherlands), 20-24.06.2012, *A world of decisions*. 6th European Academy of Forensic Science Conference.
- Padova (Italy), 2.12.2010, *La prova scientifica nei tribunali e il ruolo delle probabilità*. Dept. of Statistical Science, University of Padova, PhD School in Statistics.
- Toulouse (France), 20-24.07.2009, *Making decisions*. European Meeting of Statisticians.
- Madrid (Spain), 6-10.10.2008, *Forensic science and graphical probability models to interpret scientific evidence*. The 1st International Conference on Forensic Engineering.
- Edinburgh (Scotland), 2-3.12.2005, *Forensic scientists and decision-making*. Transdisciplinary seminars on Law, Probability and Risk - Criminal Investigation & Evidence Evaluation, University of Edinburgh.

**Organisation of international conferences**
Franco Taroni is a member of the Board for the organisation of the series of international meetings on forensic statistics carried out every three years, alternatively in Europe and in the United States. He was in charge of the organisation of the *7th International Conference on Forensic Inference and Statistics* (Lausanne, August 2008, approximately 150 participants). Government, University and Swiss research institutions supported the conference. Franco Taroni was member of the Scientific Committee of the EAFS Conference and he was in charge of the organisation of one of the four main themes of the conference (Strength of forensic evidence). At UNIL, he organised PhD seminars supported by the SNSF with invited international scientific referees.

**Award**
Franco Taroni was awarded *The Forensic Science Society PW Allen Award 2009* (an international prize for the best paper published in a forensic science journal) and the best presentation at the *25th Congress of the International Society for Forensic Genetics* (Melbourne, Australia, 2013).

[8] The book has been translated into Spanish: Estadistica y evaluacion de la evidencia para expertos forenses, Colin Aitken, Franco Taroni (Authors), Jose Juan Lucena, Laura Gil, Rafael Granero (Translators). Publisher: Editorial Dykinson, S.L. (16 April 2010).

**Memberships to editorial boards of international journals and institutions**

- 2012: *Guest Associate Editor* for the Research Topic 'DNA, statistics and the law: a cross-disciplinary approach to forensic inference' in the (on-line) journal *Frontiers in Statistical Genetics and Methodology* (http://www.frontiersin.org).
- Since 2011: International Scientific Referee for (a) the *Office of Justice Programs, National Institute of Justice* – Applied Research and Development in Forensic Science for Criminal Justice Purposes (Washington, D.C., USA), (b) the *Netherlands Organisation for Scientific Research* (The Hague, NL) and (c) *The Branco Weiss Fellowship* (Swiss Federal Institute of Technology, Zürich, Switzerland).
- Since July 2002: Co-founder and editor of *Law, Probability and Risk*, Oxford University Press, Oxford. This journal (4 issues/year) engages in the challenge of guiding people in reasoning under uncertainty, which is common to law, probability and statistics. Reasoning under uncertainty raises not only legal and scientific questions of technical difficulty and practical importance, but also fundamental questions in a wide variety of domains.
- Since 2009: Reviewer for *book proposals* submitted to John Wiley & Sons (Statistics in Practice).
- Since 1996: Referee for the international journals *Forensic Science International*, *Science & Justice*, *Journal of Forensic Sciences*, *Journal of the Royal Statistical Society* (*Applied Statistics*), the *Scandinavian Journal of Statistics* and the *Encyclopaedia of Forensic Science* (John Wiley & Sons).

**Major collaborations**

Prof Colin Aitken, Statistics, School of Mathematics, University of Edinburgh, Scotland.
Prof Silvia Bozza, Statistics, Department of Economics, University Cà Foscari of Venice, Italy.
Prof Paolo Garbolino, Philosophy of Science, Department of Architecture, IUAV University of Venice, Italy.
Prof Luca Luparia, *Innocent Project* (Director), Faculty of Law, University of Milano, Italy.
Prof Patrice Mangin, Legal Medicine, University Center of Legal Medicine, Lausanne-Geneva, Switzerland.
Prof Matthieu Schmittbuhl, Imagery, Department of Medical Radiology, University of Montreal.
Prof William Thompson, Law of evidence, Department of Criminology, University of Irvine, United States.