



Monday – Friday 27 June – 1 July 2022  
German Judicial Academy  
Berliner Allee 7  
54295 Trier Germany

## EJTN JUDICIAL TRAINING METHODS

**Seminar on „Probability, Statistics, and judicial decision making“**

**TM/2022/07**



With financial support from the Justice  
Programme of the European Union

This seminar will critically explore the role that statistics and probability theory play in judicial decision making.

Judges are frequently confronted with evidence that is explicitly statistical in nature. Expert witnesses, for instance, report frequencies and error probabilities. To integrate this information in her reasoning, the judge has to know the methods of dealing with quantified information that statistics provide. Ignorance of statistical methods can lead judges to outright reject, fundamentally misinterpret, or –worse – selectively believe statistical findings presented in court.

Ultimately, however, all proof remains uncertain. Hence evidence is fundamentally probabilistic in nature. Therefore, even evidence that cannot be presented quantitatively can – and possibly should – be treated in accordance with probability theory. A lack of knowledge of probability leaves the judge defenseless against the many tricks her brain may play on her in the artificial setting of a court hearing.

Judges and prosecutors, however, are not usually trained in critically examining, understanding, or applying probabilistic methods. Nor are they proficient at interpreting results of statistical research. The seminar will tackle this knowledge gap. In a first part it will expose the risks of confronting the evaluation of evidence without recourse to probability, explain basic principles of probability theory and their application to everyday evidence, and elaborate how probabilistic reasoning is applied to quantitative data in research using inferential statistics.

In a second part, the seminar will look more specifically at forensic science as well as the principles of evaluative thinking, explore hands on how evidence is located, analyzed and fed into judicial decision making processes, and explain the principles of evaluative thinking using the interpretation of DNA evidence as an example.

### Learning outcomes

#### *Knowledge and understanding*

- Understand the problems of not using probabilistic thinking in judicial reasoning.
- Understand the problems of using statistics and probability theory in judicial decision making, get acquainted with the basic principles of probability and statistics, and realize how probability may contribute to more rational judicial decision making .
- Understand the basics of forensic science and evaluative thinking.

#### *Practical and analytical skills*

- Develop skills to critically analyze and apply probability theory in order to make judicial decisions more rationally.
- Develop skills to critically analyze forensic expert statements and DNA analysis.

## AGENDA

### MONDAY 27 June 2022

15:00	Arrival at German Judicial Academy	
19:00	<b>Welcome words</b> Group photo	<b>Stephan Jaggi</b> , Director of the German Judicial Academy <b>Arno Vinkovic</b> , EJTN
	<b>Official Dinner</b>	

### Tuesday 28 June 2022

8:45	Arrival and registration of participants	
9:00-12:00	<b>Statistical errors in judicial decision making</b>	<b>Alexander Morell</b>
12:00-15:00	Lunch break	
15:00-18:00	<b>Lecture &amp; Workshop on Bayesian Statistics</b>	<b>Mark Schweizer</b>
19:00	Dinner	

### Wednesday 29 June 2022

8:45	Arrival and registration of participants	
9:00-12:00	<b>From probability to statistical hypothesis testing</b>	<b>Martin Missong</b>
12:00-15:00	Lunch break	
	<b>Free afternoon</b>	
15:00	<b>18:00 Organised guided tour of Trier</b>	

### Thursday 30 June 2022

8:45	Arrival and registration of participants	
9:00-12:00	<b>Evidence collection from the perspective of forensic science</b>	<b>Niamh NicDaeid</b>
12:00-15:00	Lunch break	
15:00-18:00	<b>The principles of evaluative thinking and reasoning</b>	<b>Alex Biedermann</b>
19:30	Group dinner in the city	

### Friday 1 July June 2022

8:45	Arrival and registration of participants	
9:00-12:00	<b>Evidence collection from the perspective of forensic science</b>	<b>Roberto Puch-Solis</b>
	<b>End of seminar</b>	<b>Stephan Jaggi &amp; Arno Vinkovic</b>
12:00	Lunch & Departure of participants	

## ACTIVITY COORDINATOR

Dr. Stephan Jaggi, LL.M., J.S.D. (Yale)

## SPEAKERS

- **Alexander Morell**, University Frankfurt, Law Faculty
- **Mark Schweizer**, Swiss Federal Patent Court
- **Martin Missong**, University Bremen, Faculty of Economics
- **Niamh NicDaeid**, University of Dundee
- **Alex Biedermann**, University of Lausanne
- **Roberto Puch-Solis**, University of Dundee



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