האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

Cognitive Bias in Forensic Science - 61316

Last update 09-10-2021

HU Credits: 4

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Criminology

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: Mt. Scopus

Course/Module Coordinator: Naomi Kaplan-Damary

Coordinator Email: naomi.kaplan@mail.huji.ac.il

Coordinator Office Hours: By prior appoitment

Teaching Staff:

Dr. Naomi Kaplan-Damary

Course/Module description:

Although forensic science has been used for hundreds of years to assist in determining whether a suspect is guilty or not, it is currently undergoing an unprecedented period of challenge and reform. Recent advances, especially the use of DNA technology, have revealed that faulty forensic analysis may have contributed to wrongful convictions and errors of impunity. The human factor can also contribute to errors in forensic examination and in judicial rulings. Forensic examiners, like all people, are susceptible to biases of which they may not be aware. These may cloud their judgement and lead to erroneous decisions. In this course, we will try to identify these biases and ways in which to mitigate their pernicious effects in different areas of forensic analysis such as: fingerprints, DNA, footwear, firearms and toolmarks, bitemarks, arson investigation, hair microscopy, handwriting and bloodstains.

Course/Module aims:

To identify cognitive biases and ways in which to mitigate their pernicious effects in different areas of forensic analysis.

Learning outcomes - On successful completion of this module, students should be able to:

At the end of the course the student will be able to:
identify major types of cognitive biases that pertain to forensic science;
describe the effects of these biases on human judgement in different fields of forensic science;
propose ways in which to reduce or avoid these effects.

Attendance requirements(%):

Attendance is taken into account in the assessment of student participation.

Teaching arrangement and method of instruction: The first section of the course will be taught frontally by the teacher who will show presentations. Following this, students will present key topics in the course.

Course/Module Content:

1. Introduction: Forensic science - current challenges and reforms
2. Cognitive bias
3. History of forensics
4. The forensic examination

5. Different fields in forensic science
6. How to minimize cognitive bias in forensic examination
7. Applications (presented by students) – cognitive bias in the different forensic fields: what has been done and what should be done.

Required Reading:

Segura et al. 2016: Segura, L. & Smith, J. (2016, March 25). Viva 4N6. The Intercept.
Stern et al. 2019: Stern, H., Cuellar, M. & Kaye, D. (2019, April). Reliability and validity of forensic science evidence. Significance Magazine
Balko 2015: Balko, R. (2015, April 31). A brief history of forensics. The Washington Post.
Balko 2017a: Balko, R. (2017, January 30). Incredibly, Prosecutors Are Still Defending Bite Mark Evidence. The Washington Post.
Balko 2017b: Balko, R. (2017, February 16). Man wrongly convicted with bite mark evidence confronts bite mark analysts. The Washington Post.
Dror 2020: Dror, I. E. (2020). Cognitive and human factors in expert decision making: six fallacies and the eight sources of bias. Analytical chemistry, 92(12), 7998-8004.
Kukucka, Dror In press: Kukucka, J & Dror, I. E. (In press). Human Factors in Forensic Science: Psychological Causes of Bias and Error. The Oxford Handbook of Psychology and Law.
New York: Oxford University Press.
Dror 2021: Dror, I. E., & Kukucka, J. (2021). Linear Sequential Unmasking–Expanded (LSU-E): A general approach for improving decision making as well as minimizing noise and bias.
Dror et al. 2006: Dror, I. E., Charlton, D., & Péron, A. E. (2006). Contextual information renders experts vulnerable to making erroneous identifications. Forensic science international, 156(1), 74-78.
Dror, Hampikian, 2011: Dror, I. E., & Hampikian, G. (2011). Subjectivity and bias in forensic DNA mixture interpretation. Science & Justice, 51(4), 204-208.
Kassin et al, 2013: Kassin, S. M., Dror, I. E., & Kukucka, J. (2013). The forensic confirmation bias: Problems, perspectives, and proposed solutions. Journal of applied research in memory and cognition, 2(1), 42-52.

Additional Reading Material:

Cole et al. 2008: Cole, S. A., & Dioso-Villa, R. (2008). Investigating the CSI effect: Media and litigation crisis in criminal law. Stan. L. Rev., 61, 1335.
NRC 2009: National Research Council. (2009). Strengthening forensic science in the United States: a path forward. National Academies Press.
PCAST 2016: President's Council of Advisors on Science and Technology (US). (2016). Report to the President, Forensic Science in Criminal Courts: Ensuring

Scientific Validity of Feature-comparison Methods. Executive Office of the President of the United States, President's Council of Advisors on Science and Technology. Galton 1892: Galton, F. (1892). Fingerprints. New York: Macmillan and Company, pp. 100–113.

Course/Module evaluation:
End of year written/oral examination 0 %
Presentation 0 %
Participation in Tutorials 10 %
Project work 0 %
Assignments 0 %
Reports 10 %
Research project 70 %
Quizzes 0 %
Other 10 %
Presentation of Research Project

Additional information: