**Program SIKS course; Advanced Data Science: Mathematical Methods**

Online, February 04 and 05, 2021

*Thursday, February 04*

09.30 – 09.45 Opening and introduction (*Dr. R Starmans, UU, TiU*)

09.45 - 11.15 What is Deep Learning? Understanding the basics (*Prof. dr. E.O.Postma, TiU*)

11.15 - 11.30 Break

11.30 – 12.45 Deep Learning; Advances and examples (*Prof. dr. E.O.Postma,TiU*)

12.45 - 13.45 Lunch

13.45 - 15.15 Deep Learning and neural networks in the KERAS - environment / exercises (*Prof. dr.
 E.O.Postma, TiU*)

15.15 – 15.30 Break

15.30. – 16.45 Mathematical methods for Statistics, sampling, Monte Carlo, and Maximum Likelihood
 (*Dr. G. Spigler, TiU*)

16.45 – 17.00 Break

17.00 – 18.00 Introduction to Optimization
 (*Dr. Spigler, TiU*)

*Friday, February 05*

09.30 - 11.00 Evaluation metrics in data science I (*Prof. dr. A.P.J. van den Bosch, Meertens Instituut, UVA*)

11.00 - 11.15 Break

11.15 – 12.15 Evaluation metrics in data science II (*Prof. dr. A.P.J. van den Bosch, Meertens Instituut, UVA*)

12.15 - 13.00 Lunch

13.00 - 14.30 Model selection and decision theory (*Prof. dr. T.M. Heskes, RUN*)

14.30 - 14.45 Break

14.45 – 16.15 Model selection and decision theory / Interactive exercises (*Prof. dr. T.M. Heskes, RUN*)

16.15 – 16.30 Wrapping up