Teaching statement

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In the fifteen years that I have worked in my present position, I have built up quite some teaching experience: administrative records kept since 2008–2009 accumulate to 6,883 hours spent on courses, of which 1,526 hours lecturing. These totals do not include efforts in my first two years at the KdVI, nor time for students' individual (MSc., BSc., etc.) projects. Including teaching experience from earlier jobs as a PhD-student in theoretical physics in Utrecht, as well as the years spent at the Free University and at UC Berkeley, the total number of hours spent on courses is well over 10,000 with more than 2,500 contact hours. I have always enjoyed teaching, with courses in the most diverse subjects: everything from a seminar on *Quantum Field Theory* in Utrecht, to *Stat 25: Applied Probability and Statistics* at UC Berkeley, to *Asymptotic Statistics* (Mastermath) and *Functional analysis* in my present job. Teaching evaluations have always been good (typically graded with 8 or 8.5 out of 10; evaluation reports available on request). My *Basis-Kwalificatie Onderwijs (BKO)* dates from October 7, 2013.

Perhaps most enjoyable are the specialist courses for PhD-students: for example, in May 2016 I taught a three-day tutorial on *Limits theorems in Bayesian statistics* in the *24th Hilversum meeting of students in stochastics*, and in November 2018, I was offered the opportunity to teach a 14-hour, two-week course *Frequentist limits from Bayesian statistics* at the *Dept. of Decision Sciences, Bocconi University, Milano*. During my sabbatical in the Autumn semester of 2021, I teach a course *Advanced Bayesian methods for frequentists* at the Collegio Carlo Alberto in Turin, Italy. At such summer-school-like occasions, subject, audience and setting of the course are all optimally matched, resulting in the most fruitful type of university-level education. Such meetings naturally involve a mix of education and research and have led to new research contacts and initiatives.

Over the course of the past three years or so, I have put a substantial amount of time into the writing of an approximately 400 pp. book, entitled *The frequentist theory of Bayesian statistics*, for Springer Verlag [BK]. A preliminary version is available on my homepage; an editorial first version, ready for review, is to be completed by December 2021. The first part of the book is based on an evolving set of lecture notes for the course *Bayesian statistics* I have been teaching at the University of Amsterdam since 2007: after some introductory chapters on the Bayesian and frequentist basics of parametric estimation, testing, decision theory and uncertainty quantification, there is a discussion of so-called regular estimation and the Bernstein-von Mises theorem, as well as a chapter on model misspecification. The second, non-parametric part of the book can serve as the basis for a new course *Non-parametric Bayesian statistics* in an MSc. programme or in Mastermath, an initiative that I intend to pursue when the book is finished. As an example of what lecture material for such a course would comprise, I refer to the 250-

slide PDF presentation for the November 2018 course in Milano, which can be found on my homepage.

To conclude, let me attempt to sketch a broader perspective on mathematical-statistics education. When L. Le Cam was defending his (extremely mathematical) educational views in Berkeley in the 70's and 80's, he would always argue that: "We should teach students more mathematics, not less; that way we can teach them more statistics later." Although I agree with his statement in principle, I realize that statistics as a discipline has evolved since Le Cam's days: the introduction of computers and high volumes of data have meant that practising statisticians spend their time behind screens rather than notepads. Mathematical statistics education must accommodate this reality and, in this respect, Bayesian statistics can form a concrete starting point, because it is both statistically mature and computationally accessible. The importance of giving our MSc. and BSc. students in statistics such a dual background will only increase: future requirements on students will include not only an extensive set of computer skills, but more importantly, a thorough understanding of the possibilities and limitations of statistical methods.