Teaching statement by Georgy Shevlyakov

Teaching mathematics, probability, statistics, and recently the disciplines of the electrical engineering education cycle at the undergraduate, graduate and postgraduate levels.

The courses delivered:
Analysis (Calculus)
Methods of Optimization and Their Applications
Theoretical Mechanics
Probability Theory
Mathematical Statistics
Stochastic Processes
Robust Statistics
Mathematical Methods of Data Analysis
Queueing Theory
System Theory
Information and Coding Theory

The main didactic work is the textbook "**Probability Topics in Mathematics",** Publishing House "Ivan Fedorov", St. Petersburg, 588 p., 2001. Part 4: *Mathematical Statistics*, pp. 399-588. Coauthor: Yuri D. Maksimov (in Russian)

In this textbook, the following topics are represented: sampling, distribution density estimation, point and interval estimation, hypotheses testing, regression and correlation analysis. Considering each topic, we use the classical, robust and nonparametric approaches. Here we keep to the following general line of reasoning: from the exploratory data and graphical analysis to formulating and testing hypotheses, and then to constructing a parametric model of the underlying distribution with the subsequent use of the maximum likelihood principle.

Teaching philosophy
While teaching future users of mathematical methods, we should mark the following three kinds of topics and mathematical tools, which are different for different applications: firstly, **necessary every day;** secondly, **necessary once a year**; thirdly, **necessary once a life**, and, respectively, students should be taught these topics in a different manner but not uniformly the same.
Our didactic approach follows the scheme: lectures - seminars – laboratory works.
The goals of lectures are to describe *mathematical tools* and the conditions of their applicability.
The main goal of seminars is to use mathematical tools over the set of specially selected *illustrative examples*.
The main goal of laboratory works is to teach students to solve *complicated real-life problems* in applications using mathematical packages.
This approach cannot be reduced to the direct use of mathematical packages as they are usually based on the principles different from the methodology of solving real-life problems in applications.

Didactic works:

1) Laboratory works in mathematical statistics. Part 1-4. St. Petersburg State Technical University, 1990-1993, 140 p. Coauthor: Yu. Maksimov (in Russian).
2) Lecture Notes on Queueing Theory, 2003, GIST, 87 p.
3) Lecture Notes on Robust Statistical Methods in Signal Processing, 2003, GIST, 63 p.
4) Lecture Notes on System Theory, 2004, GIST, 90 p.
5) Lecture Notes on Advanced Probability, 2004, GIST, 98 p.
6) Lecture Notes on Statistical Methods of Data Processing, GIST, 80 p.
7) Lecture Notes on Information and Coding Theory, 2005, GIST, 114 p.