

Göttingen, Berlin, Munich, Dortmund, Freiberg, Freiburg: Statistics in Germany

In this title, Göttingen stands for Gauss as well as for the mathematical roots of statistics. Freiberg and Freiburg are extremal points (at least in a geographical sense), and the other places are not simply a convex combination of these, but a random selection from a number of important statistics sites in Germany.

Carl Friedrich Gauss (1777–1855) was professor of astronomy and director of the astronomical observatory in Göttingen. He is cited here not only as a creator of a number of statistical tools. Gauss is ranked as one of history's most influential mathematicians, and he also contributed in a remarkable way to many other fields of science, including geodesy, astronomy and physics. Altogether he represents branches of science which were to make Göttingen a leading university in the world.

Göttingen represents the “golden age” of mathematics and physics in Germany. It is clear that the mathematical achievements at that time also had a large impact on probability and statistics. David Hilbert taught at Göttingen, and he included the call for the axiomatization of probability theory into his famous list of twenty-three problems in mathematics. However, it was part of the sixth problem, which is on the axiomatization of physics. Obviously Hilbert considered probability theory as a branch of physics. This is a natural consequence of the prominent role of statistical mechanics in the second half of the nineteenth century. Subsequently additional impulses came from physicists, the most influential being Albert Einstein.

Many famous researchers in probability and statistics studied in Göttingen or visited the university. For example, John von Neumann was Hilbert's assistant, and Norbert Wiener visited David Hilbert and Edmund Landau. In 1918, an Institute of Mathematical Statistics was founded in Göttingen. Felix Bernstein was appointed the first Chair of Actuarial Mathematics there in 1921. He had been a student of Cantor and Hilbert, and most of his activity was in statistics, actuarial mathematics and mathematical biology. However, in other German universities eminent scholars arose in the field of probability and statistics, too. We only name here Felix Hausdorff (Leipzig and Bonn) and Richard von Mises (Dresden and Berlin).



Germany

Nevertheless, statistics ‘proper’ was not seen as a part of mathematics until the early twentieth century. Unlike the English statistical school, the continental European school was mainly occupied with the observation and analysis of social and economic mass phenomena. The nineteenth century saw a rise of statistical offices, starting with the foundation of the Royal Statistical Office in Berlin in 1805, collecting and publishing large amounts data about population, production, and prices. In 1872 a National Statistical Office was built “to collect and check statistical material and process it technically and by scientific methods”. In the beginning, this office included three people with a university education; the present number is 380.

A hundred years ago German statistics began to emancipate itself from social and economic sciences. In 1911 the German Statistical Society was founded as a section of the German Society for Sociology. However, the rise of statistics as a mathematically-founded methodology, and the development of an academic statistical community, were massively damaged by the Nazi tyranny. Von Mises emigrated to Turkey and the USA, Hausdorff ended his life to avoid deportation. Many other mathematical statisticians were forced to leave Germany, among them Felix Bernstein, William Feller, Emil Gumbel, and Felix Pollaczek. Similarly for the Austrian statisticians Abraham Wald, Henry B. Mann, Zygmund W. Birnbaum, Eugen Lukacs, Gerhard Tintner, and Oskar Morgenstern.

The new beginnings of mathematical statistics after World War II were difficult. One reason was the bleeding of the field through the exodus of scholars, another reason the cold war between the two German states. In most West German mathematical faculties, pure mathematics was higher valued than applied mathematics and statistics. So it took until the mid-fifties until chairs of mathematical statistics and probability were established in Munich, Hamburg, Heidelberg and Göttingen. New institutes of mathematical statistics were built in Münster in 1959 and shortly after that in Freiburg. Major topics of research at these institutes were the theory of parametric and nonparametric statistical tests, in particular their asymptotics, stochastic processes, decision theory, and sequential

statistics. Students of these institutes subsequently spread over all parts of Germany and contributed to the growth of statistics. In East Germany statistics flourished in many places, the most remarkable being the universities of Freiberg, Rostock, Berlin, and Magdeburg. There was a focus on statistics applied to science and technology. Let us mention a few of the most important developments: experimental design in Rostock (and also in Freiberg and Magdeburg), stochastic geometry and queuing in Freiberg, regression and modelling in Berlin.

Today the German Statistical Society (DStatG) collects statisticians from academia and outside in equal parts. Besides that, many mathematical statisticians are organized in the Special Interest Group for Probability & Statistics, a subsection of the German Mathematical Society. Most biostatisticians associate in the German Section of the International Biometric Society, and many applied statisticians are members of the German Classification Society and other scientific societies in special areas of applications. Recently, eleven societies that are related to statistics have founded a joint association, the DAGStat, in order to facilitate communication

between statisticians working in theory and various fields of application, and to represent the whole spectrum of statistics in the public. A first large DAGStat conference, "Statistics Under One Umbrella", was held in Bielefeld in March 2007.

There are several international journals that were originally founded by German statisticians. *Metrika* was founded in 1958 by Oskar Anderson and Wilhelm Winkler: it publishes research papers in the field of mathematical statistics and statistical methods. *Statistical Papers*, founded in 1960 by Günter Menges, publishes papers on statistical theory, methods and applications, with special attention given to those statistical methods that are relevant to economic and social sciences. *AStA—Advances in Statistical Analysis*, as a recently relaunched journal, looks back on the longest tradition, founded in 1890 by Georg von Mayr. It also publishes general contributions to statistics in theory, methods and applications and includes clusters of articles in emerging fields. [See the call for papers below]

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Call for Papers: *AStA—Advances in Statistical Analysis*

The editors invite you to submit manuscripts to *AStA—Advances in Statistical Analysis*, a journal of the German Statistical Society, published quarterly by Springer. It is a successor to the *Allgemeines Statistisches Archiv*, which was founded in 1890. *AStA—Advances* welcomes original contributions on statistical theory, methods and applications on a sound basis of probability and mathematics. Articles on probability or formal methods are welcome if they take a statistical or practical problem as a starting point.

It is our wish to bring out a journal which is attractive to both readers and contributors alike. To ensure that manuscripts from a variety of areas of statistics are dealt with competently and to the highest standard, we have added a number of leading experts in important research areas to the Editorial Board for *AStA—Advances*. The editorial policy builds on that of the former *Archiv*. It strives, however, to make further developments, not only becoming more thorough but also widening the range of areas of current interest.

As statistical analysis of economic and social phenomena has a long tradition in the former *Archiv*, articles on problems arising in these areas are especially welcome. However, *AStA—Advances in Statistical Analysis* is open to other fields of applications as well. For example, a second focus is statistics in the natural sciences and technology, including topics such as quality and reliability. Theoretical developments can profit from this interest in covering a broad spectrum of application fields: for example, methods of process control have been successfully adapted to and applied in the field of finance. There is a strong interplay with econometrics. And it is not only new fields that are emerging; exciting new methodological developments are taking place in traditional areas.

AStA—Advances would like to offer researchers in these fields a forum to both act as an introduction to and promote the active discussion of their research. To ensure that each topic receives due individual attention, proposals involving emerging topics are particularly welcome. They should include a description of the prospective field and its principal sources of research, together with a selection of authors who may be willing to contribute. Proposals should be sent to the editor. They will be peer-reviewed within a short period of time. Those topics deemed most suitable will be given priority: the publication of a minimum number of suitable manuscripts is guaranteed, and the discussions of articles is promoted. For more information, including guidelines for authors, please visit <http://www.springer.com/10182>