STATISTICS AND DATA SCIENCE

24 Hillhouse Avenue, 203.432.0666
http://statistics.yale.edu
M.A., Ph.D.

Chair
Harrison Zhou

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Associate Professor Sekhar Tatikonda (Electrical Engineering)
Assistant Professors Jessi Cisewski, Sahand Negahban, Yihong Wu
Senior Lecturer Jonathan Reuning-Scherer
Lecturer Susan Wang

FIELDS OF STUDY
Fields of study include the main areas of statistical theory (with emphasis on foundations, Bayes theory, decision theory, nonparametric statistics), probability theory (stochastic processes, asymptotics, weak convergence), information theory, bioinformatics and genetics, classification, data mining and machine learning, neural nets, network science, optimization, statistical computing, and graphical models and methods.

SPECIAL ADMISSIONS REQUIREMENTS
GRE scores for the General Test are required. A GRE Subject Test in the area closest to the undergraduate major is recommended for the Ph.D. program and encouraged for the M.A. program. All applicants should have a strong mathematical background, including advanced calculus, linear algebra, elementary probability theory, and at least one course providing an introduction to mathematical statistics. An undergraduate major may be in statistics, mathematics, computer science, or in a subject in which significant statistical problems may arise. For those whose native language is not English, the Test of English as a Foreign Language (TOEFL) scores are required. This requirement is waived only for applicants who, prior to matriculation at Yale, will have received a baccalaureate degree or its international equivalent with three years of residency from a college or university where English is the primary language of instruction.

SPECIAL REQUIREMENTS FOR THE PH.D. DEGREE IN STATISTICS AND DATA SCIENCE
There is no foreign language requirement. Students take at least twelve courses, usually during the first two years. The department strongly recommends that students take S&DS 551 (Stochastic Processes), S&DS 600 (Advanced Probability), S&DS 610 (Statistical Inference), S&DS 612 (Linear Models), S&DS 625 (Statistical Case Studies), and S&DS 661 (Data Analysis), and requires that students take S&DS 626 (Practical Work). Substitutions are possible with the permission of the director of graduate studies (DGS); courses from other complementary departments such as Mathematics and Computer Science are encouraged.

The qualifying examination consists of three parts: a written report on an analysis of a data set, a written examination, and an oral examination. The examinations are scheduled by the department, with provision for one subsequent reexamination of one or more parts in the event that a student does not pass the first time. All parts of the qualifying examination must be completed before the beginning of the third year. A prospectus for the dissertation should be submitted no later than the first week of March in the third year. The prospectus must be accepted by the department before the end of the third year if the student is to register for a fourth year. Upon successful completion of the qualifying examination and the prospectus (and meeting of Graduate School requirements), the student is admitted to candidacy. Students are expected to attend weekly departmental seminars.

Students normally serve as teaching fellows (at level 20 or the equivalent) during four terms to acquire professional training. Although this may be completed during the third and fourth years, some students elect to satisfy part of this requirement in the earlier years of study, with approval of the DGS and their adviser, in areas contributing to their professional development.

MASTER’S DEGREES
M.A. (en route to the Ph.D. in Statistics and Data Science) This degree may be awarded upon completion of eight term courses in Statistics with an average grade of HP or higher, and two terms of residence.

Terminal Master’s Degree Program in Statistics Students are also admitted directly to a terminal master’s degree program in Statistics. To qualify for the M.A., the student must successfully complete an approved program of eight term courses in Statistics with an average
grade of HP or higher, chosen in consultation with the DGS. Full-time students must take a minimum of four courses per term. Part-time students are also accepted into the master’s degree program. See Terminal M.A./M.S. Degrees, under Policies and Regulations.

Program information is available online at http://statistics.yale.edu.

COURSES