

Bachelor of Science in Statistics



Today, data are pervasive in the physical and biological sciences, technology, health care and business. Making valid conclusions, predictions and decisions based on data is *statistics*. Graduates with a bachelor of science in statistics can do a wide variety of jobs, including:

- Analysis of investment data in the banking industry;
- Identification of patterns in transaction data for online sales;
- Estimation of actuarial risk in insurance industry;
- Analysis of political surveys;
- Analysis of performance data in manufacturing.

The Department of Applied and Computational Mathematics and Statistics (ACMS) offers programs of study leading to the **bachelor of science degree in statistics**. Many graduates will choose to enter master or doctoral programs in statistics, biostatistics, computational biology, finance or the social sciences for employment in such industries as

- Health care;
- Pharmaceuticals and biotechnology;
- Academia;
- Medical research;
- High-volume retail;
- Manufacturing;
- Banking.

Bachelor of Science with a Major in Statistics. The requirements for the degree include courses that develop a strong foundation in the methods of applied mathematics and data analysis, while allowing students to also take courses in a wide variety of application areas. The specific requirements for the bachelor of science in statistics, beyond the university and college requirements are as follows.

Requirements for the B.S. in Statistics:

Chemistry (CHEM 10171, 10122 or CHEM 10171, 10172)
 Physics (PHYS 10310, 10320)
 Calculus I, II (ACMS 10550, 10560)
 Introduction to Applied Mathematics Methods I, II (ACMS 20550, 20750)
 Scientific Computing with Python (ACMS 20220 or approved alternative computing course in science)
 Applied Linear Algebra (ACMS 20620)
 Introduction to Probability (ACMS 30530)
 Mathematical Statistics (ACMS 30550)
 Statistical Methods and Data Analysis (ACMS 30600)

ACMS statistics electives (9 credits in ACMS statistics courses chosen from a list of approved courses)
 MATH or ACMS elective (3 credits in MATH or ACMS courses numbered 30000 or above)
 Science elective (3 credits)

Statistics Electives:

- ACMS 40842 Time Series Analysis
- ACMS 40852 Advanced Biostatistical Methods
- ACMS 40855 Spatio-Temporal Statistics
- ACMS 40875 Statistical Methods in Data Mining
- ACMS 40878 Statistical Computing with R
- ACMS 40950 Topics in Statistics
- Any graduate ACMS course in statistics or probability

These requirements total 42 credits in ACMS and MATH and 60 credits in Science.

Supplementary Major in Statistics. Students in numerous areas of study can benefit from advanced study in statistics. This is true for students in business and the social sciences as well as those in the natural sciences and engineering. This supplementary major is well suited for these students.

Requirements for the Supplementary Major in Statistics. The supplementary major in statistics requires 36 credits in ACMS and Mathematics. The specific requirements are as follows.

Calculus I, II (ACMS 10550, 10560)
 Introduction to Applied Mathematics Methods, I, II (ACMS 20550, 20750)
 Scientific Computing with Python (ACMS 20220 or approved alternative computing course in science)
 Applied Linear Algebra (ACMS 20620)
 Introduction to Probability (ACMS 30530)
 Mathematical Statistics (ACMS 30550)
 Statistical Methods and Data Analysis (ACMS 30600)
 ACMS Statistics electives (6 credits)

Difference from the full major. The full Statistics major requires 42 credits in ACMS and MATH courses. This supplementary major requires one fewer statistics elective and one fewer ACMS elective.

For additional information about the major in ACMS, please visit our website at <http://acms.nd.edu/> or contact us at acms@nd.edu.