About the program
Offered jointly by the College of Information Sciences and Technology, the College of Engineering, and the Eberly College of Science, the Data Sciences major will help students learn the technical fundamentals of data sciences and the skills to manage and analyze large-scale unstructured data. Students will take two years of core courses before selecting an option to explore in depth. The Applied Data Sciences option is offered by the College of IST and focuses on the principles, methods, and tools for using big data to support discovery and decision-making. For information on the Computational Data Sciences and Statistical Modeling Data Sciences options visit datasciences.psu.edu.

Characteristics of successful Data Sciences students
Analytical • Articulate • Detail-oriented • Logical • Perceptive • Strategic thinkers • Strong communicators

Entrance to major requirements
Students typically choose their major by the end of their second year. To enter this major, students must:

» meet a minimum cumulative GPA,
» fall within a specific credit window, and
» complete required courses.

IST academic advisers collaborate with enrolled students to help them understand and meet the entrance to major requirements and stay on track for graduation.

For more information about entrance to major requirements and to review a recommended academic plan, visit ist.psu.edu/etm.

Options within this major

Students can select from one of three options within the Data Sciences major to further focus their course of study.

» Applied Data Sciences (offered by the College of Information Sciences and Technology, ist.psu.edu)
» Computational Data Sciences (offered by the College of Engineering, engr.psu.edu)
» Statistical Modeling Data Sciences (offered by the Eberly College of Science, science.psu.edu)

Applied Data Sciences
Study the principles, methods, and tools for the management, integration, analysis, visualization, and predictive modeling of massive, complex data. Students will learn how to develop, apply, and validate machine learning solutions to extract actionable knowledge from large data sets. Whether it’s predicting disease patterns to save lives, analyzing financial markets, or optimizing marketing strategies based on customer behavior, students will unlock big data to solve an infinite range of problems in industry, government, and academia.
All Data Sciences options require the completion of prescribed coursework, with the majority of these credits earned through required courses common across the three options and other credits selected by students from a defined list. These courses include two semesters of programming and calculus, concepts and skills relating to statistics and databases, and a capstone course. The Applied Data Sciences option also requires students to complete courses that will expand skills in applying data sciences techniques and concepts to real-world problems.

SELECTED REQUIRED COURSES (APPLIED DS OPTION)
Students in the Data Sciences-Applied Data Sciences option will develop the foundation for their careers by taking a variety of required courses, such as:

» DS 200 – Introduction to Data Sciences
» IST 230 – Language, Logic, and Discrete Mathematics
» DS 310 – Machine Learning for Data Analytics
» DS 320 – Integration and Fusion
» DS 330 – Visual Analytics for Data Sciences
» DS 410 – Data Analytics at Scale
» IST 495 – Approved Internship

APPLICATION FOCUS AREAS
Within the major, students can choose a series of courses that will allow them to focus on a particular field in data sciences and to develop skills in one of the specialized application areas below, or they can work with an adviser to develop their own.

» Animal Science
» Astrophysics
» Engineering Science and Mechanics
» Food Science
» Health Sciences

» Information and Cybersecurity Sciences
» Life Sciences
» Marketing
» Nutrition
» Psychology

“Every company needs people who speak the language of data. It’s exciting to be on the forefront of this growing field, and the College of IST does a great job of preparing you to be a data scientist in the real world.”

» Sean Parsons, Class of 2020

Learn more at ist.psu.edu/DiscoverDS