

Kettering | ONLINE
UNIVERSITY

MASTER OF SCIENCE
DATA SCIENCE

ONLINE PROGRAM GUIDE

ONLINE.KETTERING.EDU



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WELCOME TO KETTERING UNIVERSITY ONLINE

Kettering University Online offers you the opportunity to earn prestigious master's-level credentials in a way that fits your busy life. You learn 100% online in six- or eight-week intervals. Courses are offered several times a year to allow you to select the terms that are most compatible with your schedule.

Your courses are highly interactive. Not only do you learn from experts in the field but from fellow learners who bring a range of experience and skill to the classroom. Courses go beyond recorded lectures and instead provide focused learning modules that are developed by Master Instructors with appropriately selected materials and videos.

This allows for a seminar approach to learning. In addition, course activities can be personalized to your industry and organization, providing you the opportunity to learn today and use that knowledge tomorrow. This gives you an experiential approach to your assignments, thereby providing you and your organization a value-add.

Benefits of Kettering University Online include:

- Interactive online classroom
- Learn from industry experts with high-quality academic credentials
- Opportunity to learn and share with fellow students with career experience
- Learn today - use tomorrow - the ability to translate coursework directly to your job or life situation
- Shortened course length (6 or 8 weeks)
- Professional advising - develop a relationship with a dedicated Professional Advisor supporting your academic success

I invite you to browse our site to learn more about what makes Kettering University Online unique. If you have questions, please do not hesitate to reach out to a Kettering University Online Enrollment Advisor at 1-855-341-2517. They are here to assist you every step of the way.

Wishing you success in your academic future,

Christine M. Wallace, Ph.D., M.Ed.
Vice President for Kettering Global

ABOUT KETTERING UNIVERSITY ONLINE

- Nearly 1,000 Kettering University graduates are C-level executives with major companies
- Kettering University Graduate Programs are accredited by The Higher Learning Commission

At Kettering University Online, we prepare working adults for lives of extraordinary leadership and service by linking transformative experiential learning opportunities to rigorous online academic programs.

A WORLD-CLASS CURRICULUM DESIGNED FOR WORKING ADULTS

Kettering University Online makes the delivery of academic programs as dynamic and innovative as the programs themselves. Our online course delivery system is designed for busy working professionals, with 24/7 access to course materials. You learn from respected Kettering University faculty and contributing faculty, and you earn the same degree as our on-campus students.

THE KETTERING UNIVERSITY ONLINE EXPERIENCE

- Complete your program 100% online
- A Kettering University Professional Advisor supports you from enrollment through graduation
- Engage in a highly collaborative and easy-to-use online course delivery system
- Experiential learning prepares you to add value immediately to your organization
- Receive real-time feedback from Kettering University Online instructors
- Enjoy opportunities to build your professional network with fellow working adults in your field

OUR PARTNERSHIPS

Our relationships with more than 550 corporate partners provide insight into market demands and the needs of global industries. You become part of a network of organizations, companies and leaders who understand the benefits of a Kettering University education. If you are looking for a new career or wanting to make a career move, starting with a corporate partner may give you that extra edge.



“MOST GRADUATE PROGRAMS PREPARE YOU TO PURSUE A PH.D. OURS PREPARES YOU FOR A CAREER.”

DR. CRAIG HOFF
Department Head
Mechanical Engineering



MASTER OF SCIENCE DATA SCIENCE

PROGRAM TUITION: \$800 Per Credit Hour

FAST FACTS

- 100% online – ideal for working professionals
- Complete in as few as 24 months
- Four intakes per year (fall, winter, spring, summer)
- Accredited by the Higher Learning Commission and a member of the North Central Association of Colleges and Schools
- Kettering University ranked among the top 25 best regional universities in Midwest rankings for US News and World Report
- Kettering University was nationally ranked 24th in Return on Investment in PayScale.com's 2019 report

MASTER OF SCIENCE DATA SCIENCE

KETTERING UNIVERSITY'S MASTER OF SCIENCE IN DATA SCIENCE IS A FUSION OF STATISTICAL AND COMPUTING TECHNOLOGIES INCLUDING DATA MINING, MACHINE LEARNING, CLOUD COMPUTING, AND VISUALIZATION.

It equips graduates with essential business tools and the ability to use them to create a competitive advantage in their industry. In a data-intensive domain, students will estimate the unknown by asking questions, creating and writing algorithms, and building statistical models.

Equipping students with the ability to collect, prepare, and refine data, this online master's program prepares graduates to solve organizational problems with the power of data science.

- Ranked 3rd among 2019 Best Value College in Michigan - Niche
- Named 24th nationally in Return on Investment (ROI) - PayScale.com
- Ranked among the top 100 2019 Best Colleges with No Application Fee in America -Niche

Why Earn Your MS in Data Science?

Set yourself apart with a Master of Science in Data Science from Kettering University. This program will help meet the growing need for data scientists who can generate and manage complex sets of data and leverage it for decision-making and technology development. In fact, data scientist jobs will be among the most in-demand roles across most industries by 2022, according to the World Economic Forum.

“WE EMPLOY THE LATEST RESEARCH IN EDUCATION TO INCLUDE THE USE OF SHORT-FOCUSED VIDEO, REAL-TIME ONLINE SESSIONS, AND ASSIGNMENTS THAT OFFER AN AUTHENTIC ASSESSMENT OF YOUR SKILLS AND LEARNING AS A FAR SUPERIOR WAY TO LEARN AND INTERNALIZE KNOWLEDGE.”

CHRISTINE M. WALLACE, PH.D., M.ED
Vice President
Kettering Global

DATA SCIENCE VS. DATA ANALYTICS

INFORMATION DRIVES AND INFLUENCES INDUSTRIES ACROSS OUR GLOBAL ECONOMY. DATA ALLOWS DECISION-MAKERS TO UNDERSTAND WHAT'S HAPPENING NOW (DATA ANALYTICS), AS WELL AS WHY IT'S HAPPENING AND HOW IT WILL LIKELY INFLUENCE THE FUTURE (DATA SCIENCE).

When considering a data-oriented degree, your skills in math, computer science, and advanced problem-solving can factor into which path to take.

Data Science is a rigorous field that's STEM-oriented and requires an advanced skill set to creating, defining and refining data in order to build new processes for data modeling and production. It utilizes prototypes, algorithms, predictive models, custom analysis, and a substantial amount of coding to anticipate the unknown and solve problems before they happen. Careers in data science are some of the highest-paying and highest-demanded roles within the U.S. and beyond.

Data Analytics, on the other hand, is a field with a lower barrier to entry that involves the process of examining and interpreting large data sets. It's suited for individuals who would like to apply more sophisticated analytics methods to their functional role (in fields such as marketing, finance, human resources, and IT). These roles experience a significant demand as well but are less math and technology-intensive and have a lower salary potential compared to data science careers. If you're ready to change the world with data, a Master of Science in Data Science from Kettering University's Online program is the perfect way to start.

PROGRAM REQUIREMENTS/COURSE DESCRIPTIONS

CS 541 | Foundations of Data Science

Concepts, principles, issues and techniques for big data and cloud computing provide a foundation on data curation and statistical analysis. The primary goal of this course is to introduce data analysis concepts and techniques that facilitate making decisions from a rich data set. Students will investigate big data concepts, metadata creation, interpretation, and basics of information visualization.

COMM 601 | Communicating Data

When executed well, visualizations enhance oral or written communication by supporting arguments and claims, providing insight into complex issues, and supporting recall and decision-making in audiences. In this course, students become familiar with common genres of visualization, techniques for designing them effectively and ethically, and how to present them orally and in prose.

MATH 627 | Probability and Stochastic Modeling

This is a calculus-based introduction to probability theory and stochastic modeling. Students will learn fundamentals of probability, discrete and continuous random variables, expectation, independence, Bayes' rule, important distributions and probability models, joint distributions, conditional distributions, distributions of functions of random variables, moment generating functions, central limit theorem, laws of large numbers.

MATH 637 | Statistical Inference and Modeling

A study of statistics including point and interval estimation, consistency, efficiency and sufficiency, Minimum Variance Unbiased Estimators, Uniformly Most Powerful tests, likelihood ratio tests, goodness of fit tests, an introduction to non parametric methods, and Linear models.

CS 565 | Data Mining and Information Retrieval

Information retrieval and data mining topics, including information storage and retrieval, file structures, precision and recall, probabilistic retrieval, search strategies, automatic classification, automatic text analysis, decision trees, nearest neighbor method, and rule induction.

PROGRAM REQUIREMENTS/COURSE DESCRIPTIONS

COURSEWORK (CONTINUED)

CS 651 | Cloud Computing - Architecture & Applications

A comprehensive overview of cloud computing and its application to big data and data science. Current technologies that comprise the concept of cloud computing are discussed. Exploration of major Cloud frameworks that support large data storage and applications that support data analytics.

CS 661 | Database Systems

Database design and implementation, entity-relationship model, relational model, relational query languages, physical data organization, XML, distributed database concepts, Big Data technologies, enhanced data models.

CS 682 | Machine Learning

An introduction to machine learning with application to big data. Topics include: supervised learning, unsupervised learning, learning theory bias/variance tradeoffs, VC theory, large margins, and reinforcement learning.

CS 691 | Special Topics in Data Science

Current topics in Data Science are discussed and analyzed.

CAPSTONE

CS 690 | Capstone Project in Data Science

The objective of this course is to provide real-world problems to graduate students to apply knowledge gained from academic studies in Data Science. Students select a problem in an area of interest and are supervised by faculty. Academic objectives are to understand the scope and overarching goals of the assignment, indicate competency in analytical skills, understand ethical conduct, and demonstrate curiosity and value creation.

ADMISSION REQUIREMENTS

Domestic

- Undergraduate degree in Mathematics, Physics, Engineering, or Computer Science
- Preferred prerequisite coursework includes:
 1. Calculus I and Calculus II
 2. Probability & Statistics
 3. Linear Algebra
 4. Intro to Computer ScienceWork experience in fields requiring strong analytical/statistical skills preferred (e.g. Actuary scientist, epidemiologist, etc.)
- Three letters of recommendation (one has to be from a supervisor)
- Statement of Purpose
- Resume
- GRE waived for undergraduate degree from an ABET school with a minimum 3.0 GPA or Kettering University undergraduate degree

International

International students are required to submit educational documentation to an evaluation service such as WES, which is a member of National Association of Credential Evaluation Services (NACES). This will be at the expense of the student. Kettering University undergraduate students need not submit their Kettering transcripts, but are required to submit transcripts from any other university.

International applicants whose native language is not English and who have not earned a bachelor's degree from a U.S. institution are required to take the Test of English as a Foreign Language (TOEFL), International English Language Testing System (IELTS), MELAB (offered by University of Michigan), or complete level 112 at an approved ELS center. Please have official scores sent to Kettering University's Office of Admissions, Code 1246. Photocopies will not be accepted.

Our minimum score requirements are:

- TOEFL: Paper-based: 550
- Computer-based: 213
- Internet-based: 79
- IELTS: Minimum Band score of 6.0
- MELAB: 76



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Affordable graduate programs for STEM+ professionals; financial and military aid available for those who qualify. Log on from anywhere to complete a 100% online curriculum designed to advance your career.



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