Page: https://datascience.uchicago.edu/education/mprograms/ms-in-applied-data-science/career-outcomes/ (https://datascience.uchicago.edu/education/rprograms/ms-in-applied-data-science/career-outcomes/)

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It is an exciting time to pursue a career in data science! According to theU.S. Bureau of Labor Statistics, employment for data scientists is projected to grow by 36% from 2023 to 2033—far exceeding the average growth rate for all occupations. This surge is driven by the increasing reliance on data science across industries such as technology, finance, healthcare, and business.

The career outcomes for our MS in Applied Data Science graduates are exceptional. Explore the diverse career paths our alumni have pursued, from top employers to leading industries actively seeking our graduates.

Page: https://datascience.uchicago.edu/education/mprograms/ms-in-applied-data-science/online-

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Rigor Meets Flexibility

You will benefit fromthe same top faculty, bright peer group, and academic rigoras the In-Person program. You may complete the program full- or part-time. Full-time and part-time students begin inAutumn quarter.Please visit theIn-Personprogram page if you are interested in exploring those full- and part-time options for entrance Autumn quarter.

Online Program Director,Arnab Bose, PhD

Master Data Science, Master Your Career

Get ready for what's next in data science with rigorous classes, expert instructors, leading-edge technology, and anunparalleled network of industry professionals. Afull-service teamdedicated to the MS in Applied Data Science program are here to help you reach your career potential as a member of the University of Chicago community.

Get in Touch

Read More +Show Less -

Your Outcomes

You will be a top competitor among data science jobs and career paths as a result of this program. You will have access to a dedicated team of faculty and staff who are committed to helping you reach your potential–whether it's landing a key internship, preparing for a promotion, or moving into your next job, the MS in Applied Data Science program is here to help. Among other resources, you will have access to tailored, in-house career services, academic advising, and opportunities to grow your network in person and virtually.

Your Student Experience

There are unique opportunities to support you as an Online master's student. You will have access to the same full-service team of student affairs, career services, and instructional services experts. Jointly withfaculty and instructors, our Master's in Applied Data Science team is committed to providing a supportive and enriching student experience. Our team is passionate about supporting students engaging in online education who might also be working full-time like you. Staff who lead our Online program have a background in instructional design and best practices for online learning.

Your Access to Alumni

As an Online student, you will have access to program alumni through Immersion Weekend events and virtual career services programs–all of which broadens your network and supports your career advancement goals. Upon graduation, you will also join a prestigious group ofPhysical Sciences DivisionandUChicago alumniwho live and work all over the world. Our Alumni Board that plans events and programs in Chicago and other U.S. cities.

Your Time, Your Advancement

You will engage in weekly, synchronous (real-time) classes with your instructors and peers. Live lectures provide the right forum to ask questions, work with peers, and maximize understanding of key concepts. Collaborative and interactive learning with your classmates is facilitated by advanced meeting technology during and beyond synchronous classes.

Synchronous classes are scheduled on weekday evenings at 6 pm, CT and on occasional Saturdays at 9 am, CT. Students admitted into the online program are expected to attend the live class sessions.

Each week also includes asynchronous content (learning at your own pace) to complete when it is convenient for you. These activities prepare you for synchronous classes through lecture videos, readings, and discussions. Flexibility allows you to work on data science projects, group collaborations, and assignments on your schedule.

In-Person ‘Immersion Weekend’

You will have the opportunity to attend a unique, in-person ‘Immersion Weekend’ in Chicago in the Autumn quarter.

During the Immersion Weekend, you will have the opportunity to

Network with industry leaders andalumni

Meet a vibrant and supportive community of like-minded students and faculty

Get to know, bond, and network with peers from across the country

Participate in interactive sessions, working to develop industry solutions

Gain career insights and discuss the latest trends and challenges in AI/ML

Hear from students about their experience inCapstone Projects

Tour theData Science Institute

Future Immersion Weekend dates are:

Autumn 2025 – September 25-27 (tentative dates)

We look forward to seeing you at the event!

If you are coming from a non-US location for Immersion Weekend programming, you are encouraged to come to the U.S. in visitor/tourist status; using a B-1/B-2 visa or ESTA clearance depending on whether you hold citizenship from a Visa Waiver Country or not.The immersion days are optional for students and do not carry any course enrollment for the time you are in Chicago. Please be clear when entering the U.S. that while you are a student in an online program at the University of Chicago, your visit for immersion weekend is not to attend credit-bearing classes, but to meet classmates and as a result you are coming to the U.S. as a visitor.Read More +Show Less -

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Curriculum

You will earn UChicago’s Master’s in Applied Data Science by successfully completing 12 courses (6 core, 4 elective, 2 Capstone) and our tailored Career Seminar*.

Our rigorous curriculum is designed by and for data science innovators and leaders. Courses are reviewed annually to ensure the content keeps pace with therapidly evolving landscape of data science.

You have the flexibility to pursue theMaster’s in Applied Data Sciencedegree on a part- or full-time schedule. Part-time students enroll in two courses each quarter and take their courses in the evenings or on Saturdays. Full-time students take three courses per quarter. Some of their courses may be offered during the day.

Foundational Courses (noncredit, optional)

Foundational noncredit courses are designed and taught by Master’s in Applied Data Sciencefaculty and instructors. These optional courses—available at no additional cost— provide the basis for the rigorous Applied Data Science degree. Course content undergirds the theoretical, strategic, and practical data science studies you will encounter in the rest of the curriculum.Beginning in academic year 2024-25, all entering students will complete a required online Foundational Skills Assessment. This required assessment helps faculty and advisors understand how to best support you once you begin in the program. You may choose to opt-out of taking the Foundational Skill Assessments and instead register for all four Foundational courses. The four Foundational noncredit courses are listed below. Please note that Introduction to Statistical Concepts and R are considered pre-quarter courses and therefore take place during the 5 weeks leading up to your first quarter in the program. All Foundational courses are completed virtually for all students regardless of enrollment in the In-Person or Online Program.Read More +Show Less -

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Career Seminar (noncredit, required)

Increasingly, employers demand data scientists and analytics professionals who are not only technically excellent but also superior collaborators, reliable communicators, ethical problem-solvers, and more. To ensure that our graduates remain as top candidates in the job market, we provide tailored support through our required, multi-quarter Career Seminar. The Seminar is designed to counter-balance students' time commitments in other courses. *Students with significant, relevant full-time work experience may be eligible to waive this requirement.

Core Courses (6)

You will complete 6 core courses toward yourMaster's in Applied Data Sciencedegree. Core courses allow you to build your theoretical data science knowledge and practice applying this theory to examine real-world business problems.

Elective Courses (4)

You will complete 4 required electives toward your 12-course degree program. We continually add electives to evolve with the data science landscape. Past electives include Advanced Computer Vision with Deep Learning, Advanced Machine Learning and Artificial Intelligence, Bayesian Methods, Data Science for Algorithmic Marketing, Data Visualization Techniques, Digital Marketing Analytics in Theory and Practice, Financial Analytics, Health Analytics, Machine Learning Operations, Natural Language Processing and Cognitive Computing, Real Time Intelligent Systems, Reinforcement Learning, Supply Chain Optimization.

Capstone (2)

The requiredCapstone Projectis completed over 2 quarters and covers research design, implementation, and writing. Full-time students start theirCapstone Projectin their third quarter. Part-time students generally begin theCapstone Projecttwo quarters before their projectedgraduationquarter. Students choose among industry- and research-focused projects.

Additional Resources

Upcoming Events & Deadlines

Noncredit CoursesCareer Seminar (Seminar, required)The Pass/Fail Career Seminar supports the development of industry professional skills, job and/or internship searches, and other in-demand areas of competency among today's employers. Students enroll in the Career Seminar each quarter in order to engage in unique content throughout their degree program. Students with significant full-time work experience may be eligible to waive this course. 0 units, no cost.Introduction to Statistical Concepts (Foundational, optional)This Foundational, optional course is held in the 5 weeks leading up to the start of your first quarter. This course provides general exposure to basic statistical concepts that are necessary for students to understand the content presented in more advanced courses in the program. 0 units, no cost.R for Data Science (Foundational, optional)This Foundational, optional course is held in the 5 weeks leading up to the start of your first quarter. This course is an introduction to the essential concepts and techniques for the statistical computing language R. 0 units, no cost.Python for Data Science (Foundational, optional)This Foundational, optional course is held concurrently with the first five weeks of your first quarter in the program. This course in Python starts with an introduction to the Python programming language basic syntax and environment. 0 units, no cost.Advanced Linear Algebra for Machine Learning (Foundational, optional)This Foundational, optional course is held concurrently with the second five weeks of your first quarter in the program. The advanced linear algebra course is focused on the theoretical concepts and real-life applications of linear algebra for machine learning. 0 units, no cost.Brush up on the Basics (Optional resource)If you would like to gauge your preparation in these Foundational course topics, we recommend specific Coursera courses that cover very similar topics.We have identified four Coursera courses which cover very similar topics. You can review the Coursera curricula to see if you are already well-prepared, or if you like, study their materials to brush up on some or all of these topics.Mathematics for Machine Learning: Linear Algebra (offered by University College London)Basis Data Descriptors, Statistical Distributions, and Application to Business Decisions (offered by Rice University)Python for Data Science, AI, & Development (offered by IBM)Data Analysis with R Programming (offered by Google)

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Core CoursesTime Series Analysis and ForecastingTime Series Analysis is a science as well as the art of making rational predictions based on previous records. It is widely used in various fields in today's business settings.Statistical Models for Data ScienceIn a traditional linear model, the observed response follows a normal distribution, and the expected response value is a linear combination of the predictors. Since Carl Friedrich Gauss (1777-1855) and Adrien-Marie Legendre (1752-1833) created this linear model framework in the early 1800s, the "Linear Normal" assumption has been the norm in statistics/data science for almost two centuries. New methods based on probability distributions other than Gaussian appeared only in the second half of the twentieth century. These methods allowed working with variables that span a broader variety of domains and probability distributions. Besides, methods for the analysis of general associations were developed that are different from the Pearson correlation.Machine Learning IThis course is aimed at providing students an introduction to machine learning with data mining techniques and algorithms. It gives a rigorous methodological foundation in analytical and software tools to successfully undertake projects in Data Science. Students are exposed to concepts of exploratory analyses for uncovering and detecting patterns in multivariate data, hypothesizing and detecting relationships among variables, conducting confirmatory analyses, and building models for predictive and descriptive purposes. It will present predictive modeling in the context of balancing predictive and descriptive accuracies.Machine Learning IIThe objective of this course is three-folds–first, to extend student understanding of predictive modeling with machine learning concepts and methodologies from Machine Learning 1 into the realm of Deep Learning and Generative AI. Second, to develop the ability to apply those concepts and methodologies to diverse practical applications, evaluate the results and recommend the next best action. Third, to discuss and understand state-of-the machine learning and deep learning research and development and their applications.Data Engineering Platforms for Analytics or Big Data and Cloud ComputingData Engineering Platforms teaches effective data engineering—an essential first step in building an analytics-driven competitive advantage in the market.Big Data and Cloud Computing teaches students how to approach big data and large-scale machine learning applications. There is no single definition of big data and multiple emerging software packages exist to work with it, and we will cover the most popular approaches.Leadership and Consulting for Data ScienceThe Leadership and Consulting for Data Scientist course is focused on:• Learning techniques and proven methods to effectively grasp the business domain including organizational dynamics of consultancies and client organizations• Developing relevant solutions to enterprise problems using the sampling methods, traditional statistical techniques and modern machine learning models that deliver value to the organization• Practicing successful project delivery through effective data discovery, influential team membership and leadership, project management, and communication at every stageThis course will not only make you a better data scientist; it will make you and your analyses more approachable, more persuasive, and ultimately more successful.Data Science Capstone ProjectThe required Capstone Project is completed over two quarters and covers research design, implementation, and writing.Full-time students start their capstone project in their third quarter. Part-time students generally begin the capstone project in their fifth quarter.

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Data Engineering Platforms for Analytics or Big Data and Cloud ComputingData Engineering Platforms teaches effective data engineering—an essential first step in building an analytics-driven competitive advantage in the market.Big Data and Cloud Computing teaches students how to approach big data and large-scale machine learning applications. There is no single definition of big data and multiple emerging software packages exist to work with it, and we will cover the most popular approaches.

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• Learning techniques and proven methods to effectively grasp the business domain including organizational dynamics of consultancies and client organizations• Developing relevant solutions to enterprise problems using the sampling methods, traditional statistical techniques and modern machine learning models that deliver value to the organization• Practicing successful project delivery through effective data discovery, influential team membership and leadership, project management, and communication at every stage

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Sample Elective CoursesAdvanced Computer Vision with Deep LearningComputer vision is the field of computer science that focuses on creating digital systems that can process, analyze, and make sense of visual data in the same way that humans do. Deep learning is a subset of machine learning and a branch of Artificial Intelligence (AI). It involves the training, deployment, and application of large complex neural network architectures to solve cutting-edge problems. Deep Learning has become the primary approach for solving cognitive problems such as Computer Vision and Natural Language Processing (NLP) and has had a massive impact on various industries such as healthcare, retail, automotive, industrial automation, and agriculture. This course will enable students to build Deep Learning models and apply them to computer vision tasks such as object recognition, detection, and segmentation. Students will gain an in-depth understanding of the Deep Learning model development process, tools, and frameworks. Although the focus of the course will primarily be computer vision, students will work on both image and nonimage datasets during class exercises and assignments. Students will gain hands-on experience in popular libraries such as Tensorflow, Keras, and PyTorch. Students will also learn to apply state of the art models such as ResNet, EfficientNet, RCNNs, YOLO, Vision Transformers, etc. for computer vision and work on datasets such as CIFAR, ImageNet, MS COCO, and MPII Human Poses.Advanced Machine Learning and Artificial IntelligenceSince the era of big data started, challenges associated with data analysis have grown significantly in different directions: First, the technological infrastructure had to be developed that can hold and process large amounts of data from different sources and of multiple not always well formalized formats. Second, data analysis methods had to be reviewed, selected and modified to work in distributed computational environments like combinations of in-house clusters of servers and cloud. But the biggest challenge of all is learning to think differently in order to ask new types of questions that could not be answered by analyses of less complex data streams with less complex technological infrastructure. In recent years significant progress has been achieved in creating technological ecosystems for big data analysis. Innovative technologies such as open source projects MapReduce, Hadoop, Spark, Storm, Kafka, TensorFlow, H2O, etc. allowed us to look at depths of data unseen before. We now have a growing number of sources and educational courses introducing these new tools. However, developing new data analysis methods appropriate to these new data ecosystems is more difficult than it appears.Bayesian Machine Learning with Generative AI ApplicationsThis course

provides a strong theoretical and practical skillset for probabilistic machine learning applications. Bayesian inference and modeling methods are important for several areas including prediction, decision making, and risk assessment where modeling the uncertainty is needed. The course begins with an introduction to Bayesian statistical analysis, covering the foundations of Bayesian inference and the application of Bayes' theorem for statistical inference. We then introduce Bayesian networks, which offer a powerful graphical tool for modeling complex systems and making probabilistic inferences. The course then advances to cover more sophisticated topics such as Markov Chain Monte Carlo (MCMC) methods for sampling from complex probability distributions, hierarchical models, and model selection techniques. The final three weeks are dedicated to cutting-edge methodologies like Generative Deep Learning, Variational Autoencoders, and Bayesian Neural Networks, all rooted in Bayesian Machine Learning. Upon completion, students will be equipped to apply Bayesian methods to a wide range of real-world problems in fields such as engineering, business, finance, and public policy, addressing challenges like missing data or training AI models that are able to say 'I don't know'.Data Science for Algorithmic MarketingThis course focuses on marketing science methods and algorithms for undertaking competitive analysis in the digital landscape: market segmentation, mining databases for effective digital marketing, design of new digital and traditional products, forecasting sales and product diffusion, real time product positioning, intra omni-channel optimization and inter omni-channel resource allocation, and pricing across both omni-channel marketing effectiveness and ROI. The course will use a combination of lecture, in-class discussions, group assignments, and a final group project. The course lays special emphasis on algorithms. Hence it draws heavily from the fields of optimization, machine-learning based recommendation systems, association rules, consumer choice models, Bayesian estimation, experimentation and analysis of covariance, advanced visualization techniques for mapping brand perceptions, and analysis of social media data using advanced NLP techniques.Data Science for HealthcareGiven the breadth of the field of health analytics, this course will provide an overview of the development and rapid expansion of analytics in healthcare, major and emerging topical areas, and current issues related to research methods to improve human health. We will cover such topics as security concerns unique to the field, research design strategies, and the integration of epidemiologic and quality improvement methodologies to operationalize data for continuous improvement. Students will be introduced to the application of predictive analytics to healthcare. Students will understand factors impacting the delivery of quality and safe patient care and the application of data-driven methods to improve care at the healthcare system level, design approaches to answering a research question at the population level, become familiar with the application of data analytics to impacting care at the provider level through Clinical Decision Systems, and understand the process of a Clinical Trial.Data Visualization TechniquesIn today's data driven enterprise, data storytelling using effective visualization strategies is an essential skill for analytics practitioners in almost every field to explore and present data. This course focuses on modern data visualization technologies, tools, and techniques to convert raw data into actionable information. Modern data visualization tools are at the forefront of the "self-service analytics" architectures which are decentralizing analytics and breaking down IT bottlenecks for business experts. Moreover, with its foundations rooted in statistics, psychology, and computer science, data visualization shows you how to better understand the data, present clear evidence of your findings to your intended audience and tell engaging data stories through charts and graphics. This course is designed to introduce data visualization as a medium of effective communication using strategic storytelling, and the basis for interactive information dashboards.Digital Marketing Analytics in Theory and PracticeSuccessfully marketing brands today requires a well-balanced blend of art and science. This course introduces students to the science of web analytics while casting a keen eye toward the artful use of numbers found in the digital space. The goal is to provide marketers with the foundation needed to apply data analytics to real-world challenges they confront daily in their professional lives. Students will learn to identify the web analytic tool right for their specific needs; understand valid and reliable ways to collect, analyze, and visualize data from the web; and utilize data in decision making for their agencies, organizations or clients. By completing this course, students will gain an understanding of the motivations behind data collection and analysis methods used by marketing professionals; learn to evaluate and choose appropriate web analytics tools and techniques; understand frameworks and approaches to measuring consumers' digital actions; earn familiarity with the unique measurement opportunities and challenges presented by New Media; gain hands-on, working knowledge of a step-by-step approach to planning, collecting, analyzing, and reporting data; utilize tools to collect data using today's most important online techniques: performing bulk downloads, tapping APIs, and scraping webpages; and understand approaches to visualizing data effectively.Financial AnalyticsThis course concentrates on the following topics: review of financial markets and assets traded on them; main characteristics of financial analytics: returns, yields, volatility; review of stochastic models of market price and their statistical representations; concept of arbitrage, elements of arbitrage pricing approach; principles of volatility analyses, implied vs. realized volatility; correlation, cointegration and other relationships between various financial assets; market risk analytics and management of portfolios of financial assets. The course puts special emphasis on covering main steps of building analytics from visualizing data and building intuition about their structure and patterns to selecting appropriate statistical method to interpretation of the results and building analytical models. Topics are illustrated by data analysis projects using R. Basic familiarity with R is a requirement.Generative AI PrinciplesThis course dives into the realm of Generative AI, offering a comprehensive look into the world of Large Language Models (LLMs), image generation techniques, and the fusion of vision and text through multimodal models. Drawing from core concepts in neural networks, transformers, and advanced techniques such as prompt engineering, vision prompting, and multimodality representation, students will explore the capabilities, applications, and ethical considerations of generative models. This course culminates in hands-on projects, allowing participants to apply theory to practical scenarios.Machine Learning OperationsThe objective of this course is two-fold: first, to understand what Machine Learning Operations (MLOps) is and why it is a key component in enterprise production deployment of machine learning projects, and second, to expose students to software engineering, model engineering and state-of-the-art deployment engineering with hands-on platform and tools experience. This course crosses the chasm that separates machine learning projects/experiments and enterprise production deployment. It covers three pillars in MLOps: software engineering such as software architecture, Continuous Integration/Continuous Delivery and data versioning; model engineering such as AutoML and A/B experimentation; and deployment engineering such as docker containers and model monitoring. The course focuses on best practices in the industry that are critical to enterprise production deployment of machine learning projects. Having completed this course, a student understands the machine learning lifecycle and what it takes to go from ideation to operationalization in an enterprise environment. Furthermore, students get exposure to state-of-the-art MLOps platforms such as allegro, xpresso, Dataiku, LityxIQ, DataRobot, AWS Sagemaker, and technologies such as gitHub, Jenkins, slack, docker, and kubernetes.Natural Language Processing and Cognitive ComputingExtracting actionable insights from unstructured text and designing cognitive applications have become significant areas of application for analytics. Students in this course will learn foundations of natural language processing, including: concept extraction; text summarization and topic modeling; part of speech tagging; named entity recognition; semantic roles and sentiment analysis. For advanced NLP applications, we will focus on feature extraction from unstructured text, including word and paragraph embedding and representing words and paragraphs as vectors. For cognitive analytics section of the course, students will practice designing question answering systems with intent classification, semantic knowledge extraction and reasoning under uncertainty. Students will gain hands-on expertise applying Python for text analysis tasks, as well as practice with multiple IBM Watson services, including: Watson Discovery, Watson Conversation, Watson Natural Language Classification and Watson Natural Language Understanding.Real Time Intelligent SystemsDeveloping end-to-end automation and intelligent systems is now the most advanced area of application for analytics. Building such systems requires proficiency in programming, understanding of computer systems, as well as knowledge of related analytical methodologies, which are the skills that this course aims to teach to students. The course focuses on python and is tailored for students with basic programming knowledge in python. The course is partially project based. During the first three sessions, we will review basic python concepts and then learn more advanced python and the ways to use python to handle large data flows. The later sessions are project based and will focus on developing end-to-end analytical solutions in the following areas: Finance and trading, blockchains and crypto-currencies, image recognition, and video surveillance systems.Reinforcement LearningThis course is an introduction to reinforcement learning, also known as neuro-dynamic programming. It discusses basic and advanced concepts in reinforcement learning and provides several practical applications. Reinforcement learning refers to a system or agent interacting with an environment and learning how to behave optimally in such an environment. An environment typically includes time, actions, states, uncertainty and rewards. Reinforcement learning combines neural networks and dynamic programming to find an optimal behavior or policy of the system or agent in a complex environment setting. Neural network approximations are used to circumvent the well-known 'curse of dimensionality' which has been a barrier to solving many practical applications. Dynamic programming is the key learning mechanism that the system or the agent uses to interact with the environment and improve its performance. Students will master key learning techniques and will become proficient in applying these techniques to complex stochastic decision processes and intelligent control.Supply Chain Optimization"Big Data" continues to grow exponentially in our large-scale

transactional world where 100,000s of SKUs and millions of customers are interacting with 1:1 offers that include differential pricing, shipping timing/costs and even made to order “custom” product configurations. These consumer behaviors are quickly advancing the availability of new data and techniques within the discipline of Data Science. This elective course will give students the opportunity to apply their skills in data visualization, data mining tools, predictive modeling, and advanced optimization techniques to address Supply Chain challenges. The course focuses on the use of Advanced Predictive Modeling, Machine Learning, AI and other Data Science insight and activation tools to automate and optimize the performance of the Supply Chain. Students will also learn how to optimize the performance of the Supply Chain from the lens of multiple related disciplines including: Sales Forecasting, Warehousing/Inventory Management, Promotion, Pricing, Logistics Network Optimization, Freight Cost Management, Manufacturing, Retail POS Information, Ecommerce, Consumer Data, and Product Design/Packaging. After completing this course, you will be prepared to work in any of the numerous specialty areas possible in the world of Supply Chain Management.

Advanced Computer Vision with Deep LearningComputer vision is the field of computer science that focuses on creating digital systems that can process, analyze, and make sense of visual data in the same way that humans do. Deep learning is a subset of machine learning and a branch of Artificial Intelligence (AI). It involves the training, deployment, and application of large complex neural network architectures to solve cutting-edge problems. Deep Learning has become the primary approach for solving cognitive problems such as Computer Vision and Natural Language Processing (NLP) and has had a massive impact on various industries such as healthcare, retail, automotive, industrial automation, and agriculture. This course will enable students to build Deep Learning models and apply them to computer vision tasks such as object recognition, detection, and segmentation. Students will gain an in-depth understanding of the Deep Learning model development process, tools, and frameworks. Although the focus of the course will primarily be computer vision, students will work on both image and nonimage datasets during class exercises and assignments. Students will gain hands-on experience in popular libraries such as Tensorflow, Keras, and PyTorch. Students will also learn to apply state of the art models such as ResNet, EfficientNet, RCNNs, YOLO, Vision Transformers, etc. for computer vision and work on datasets such as CIFAR, ImageNet, MS COCO, and MPII Human Poses.

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Advanced Machine Learning and Artificial IntelligenceSince the era of big data started, challenges associated with data analysis have grown significantly in different directions: First, the technological infrastructure had to be developed that can hold and process large amounts of data from different sources and of multiple not always well formalized formats. Second, data analysis methods had to be reviewed, selected and modified to work in distributed computational environments like combinations of in-house clusters of servers and cloud. But the biggest challenge of all is learning to think differently in order to ask new types of questions that could not be answered by analyses of less complex data streams with less complex technological infrastructure. In recent years significant progress has been achieved in creating technological ecosystems for big data analysis. Innovative technologies such as open source projects MapReduce, Hadoop, Spark, Storm, Kafka, TensorFlow, H2O, etc. allowed us to look at depths of data unseen before. We now have a growing number of sources and educational courses introducing these new tools. However, developing new data analysis methods appropriate to these new data ecosystems is more difficult than it appears.

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Bayesian Machine Learning with Generative AI ApplicationsThis course provides a strong theoretical and practical skillset for probabilistic machine learning applications. Bayesian inference and modeling methods are important for several areas including prediction, decision making, and risk assessment where modeling the uncertainty is needed. The course begins with an introduction to Bayesian statistical analysis, covering the foundations of Bayesian inference and the application of Bayes’ theorem for statistical inference. We then introduce Bayesian networks, which offer a powerful graphical tool for modeling complex systems and making probabilistic inferences. The course then advances to cover more sophisticated topics such as Markov Chain Monte Carlo (MCMC) methods for sampling from complex probability distributions, hierarchical models, and model selection techniques. The final three weeks are dedicated to cutting-edge methodologies like Generative Deep Learning, Variational Autoencoders, and Bayesian Neural Networks, all rooted in Bayesian Machine Learning. Upon completion, students will be equipped to apply Bayesian methods to a wide range of real-world problems in fields such as engineering, business, finance, and public policy, addressing challenges like missing data or training AI models that are able to say ‘I don’t know’.

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Data Science for Algorithmic MarketingThis course focuses on marketing science methods and algorithms for undertaking competitive analysis in the digital landscape: market segmentation, mining databases for effective digital marketing, design of new digital and traditional products, forecasting sales and product diffusion, real time product positioning, intra omni-channel optimization and inter omni-channel resource allocation, and pricing across both omni-channel marketing effectiveness and ROI. The course will use a

combination of lecture, in-class discussions, group assignments, and a final group project. The course lays special emphasis on algorithms. Hence it draws heavily from the fields of optimization, machine-learning based recommendation systems, association rules, consumer choice models, Bayesian estimation, experimentation and analysis of covariance, advanced visualization techniques for mapping brand perceptions, and analysis of social media data using advanced NLP techniques.

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Data Science for HealthcareGiven the breadth of the field of health analytics, this course will provide an overview of the development and rapid expansion of analytics in healthcare, major and emerging topical areas, and current issues related to research methods to improve human health. We will cover such topics as security concerns unique to the field, research design strategies, and the integration of epidemiologic and quality improvement methodologies to operationalize data for continuous improvement. Students will be introduced to the application of predictive analytics to healthcare. Students will understand factors impacting the delivery of quality and safe patient care and the application of data-driven methods to improve care at the healthcare system level, design approaches to answering a research question at the population level, become familiar with the application of data analytics to impacting care at the provider level through Clinical Decision Systems, and understand the process of a Clinical Trial.

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Data Visualization TechniquesIn today’s data driven enterprise, data storytelling using effective visualization strategies is an essential skill for analytics practitioners in almost every field to explore and present data. This course focuses on modern data visualization technologies, tools, and techniques to convert raw data into actionable information. Modern data visualization tools are at the forefront of the “self-service analytics” architectures which are decentralizing analytics and breaking down IT bottlenecks for business experts. Moreover, with its foundations rooted in statistics, psychology, and computer science, data visualization shows you how to better understand the data, present clear evidence of your findings to your intended audience and tell engaging data stories through charts and graphics. This course is designed to introduce data visualization as a medium of effective communication using strategic storytelling, and the basis for interactive information dashboards.

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Digital Marketing Analytics in Theory and PracticeSuccessfully marketing brands today requires a well-balanced blend of art and science. This course introduces students to the science of web analytics while casting a keen eye toward the artful use of numbers found in the digital space. The goal is to provide marketers with the foundation needed to apply data analytics to real-world challenges they confront daily in their professional lives. Students will learn to identify the web analytic tool right for their specific needs; understand valid and reliable ways to collect, analyze, and visualize data from the web; and utilize data in decision making for their agencies, organizations or clients. By completing this course, students will gain an understanding of the motivations behind data collection and analysis methods used by marketing professionals; learn to evaluate and choose appropriate web analytics tools and techniques; understand frameworks and approaches to measuring consumers’ digital actions; earn familiarity with the unique measurement opportunities and challenges presented by New Media; gain hands-on, working knowledge of a step-by-step approach to planning, collecting, analyzing, and reporting data; utilize tools to collect data using today’s most important online techniques: performing bulk downloads, tapping APIs, and scraping webpages; and understand approaches to visualizing data effectively.

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Financial AnalyticsThis course concentrates on the following topics: review of financial markets and assets traded on them; main characteristics of financial analytics: returns, yields, volatility; review of stochastic models of market price and their statistical representations; concept of arbitrage, elements of arbitrage pricing approach; principles of volatility analyses, implied vs. realized volatility; correlation, cointegration and other relationships between various financial assets; market risk analytics and management of portfolios of financial assets. The course puts special emphasis on covering main steps of building analytics from visualizing data and building intuition about their structure and patterns to selecting appropriate statistical method to interpretation of the results and building analytical models. Topics are illustrated by data analysis projects using R. Basic familiarity with R is a requirement.

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Generative AI PrinciplesThis course dives into the realm of Generative AI, offering a comprehensive look into the world of Large Language Models (LLMs), image generation techniques, and the fusion of vision and text through multimodal models. Drawing from core concepts in neural networks, transformers, and advanced techniques such as prompt engineering, vision prompting, and multimodality representation, students will explore the capabilities, applications, and ethical considerations of generative models. This course culminates in hands-on projects, allowing participants to apply theory to practical scenarios.

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Machine Learning OperationsThe objective of this course is two-fold: first, to understand what Machine Learning Operations (MLOps) is and why it is a key component in enterprise production deployment of machine learning projects, and second, to expose students to software engineering, model engineering and state-of-the-art deployment engineering with hands-on platform and tools experience. This course crosses the chasm that separates machine learning projects/experiments and enterprise production deployment. It covers three pillars in MLOps: software engineering such as software architecture, Continuous Integration/Continuous Delivery and data versioning; model engineering such as AutoML and A/B experimentation; and deployment engineering such as docker containers and model monitoring. The course focuses on best practices in the industry that are critical to enterprise production deployment of machine learning projects. Having completed this course, a student understands the machine learning lifecycle and what it takes to go from ideation to operationalization in an enterprise environment. Furthermore, students get exposure to state-of-the-art MLOps platforms such as allegro, xpresso, Dataiku, LityxIQ, DataRobot, AWS Sagemaker, and technologies such as gitHub, Jenkins, slack, docker, and kubernetes.

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Natural Language Processing and Cognitive ComputingExtracting actionable insights from unstructured text and designing cognitive applications have become significant areas of application for analytics. Students in this course will learn foundations of natural language processing, including: concept extraction; text summarization and topic modeling; part of speech tagging; named entity recognition; semantic roles and sentiment analysis. For advanced NLP applications, we will focus on feature extraction from unstructured text, including word and paragraph embedding and representing words and paragraphs as vectors. For cognitive analytics section of the course, students will practice designing question answering systems with intent classification, semantic knowledge extraction and reasoning under uncertainty. Students will gain hands-on expertise applying Python for text analysis tasks, as well as practice with multiple IBM Watson services, including: Watson Discovery, Watson Conversation, Watson Natural Language Classification and Watson Natural Language Understanding.

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Page: https://datascience.uchicago.edu/education/m programs/ms-in-applied-data-science/our-students/ (https://datascience.uchicago.edu/education/r programs/ms-in-applied-data-science/our-students/)

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Wael MohammedGraduate (Part-Time), MS in Applied Data Science

Maggie Wu

Seoul, Republic of Korea

Currently, I am pursuing a summer internship at Awarity, a digital marketing company.

Over the past six years, I've worked as a data consultant, contributing my expertise to organizations such as IBM GBS and Ernst & Young. Throughout this period, I've engaged with various company functions, all with the common objective of uncovering meaningful insights through data. My motivation has always been to see the impact of my work, whether it's driving revenue growth or supporting overall company goals. I'm fortunate to have my career take shape the way it has so far, and I'm excited to continue pushing the boundaries of data science, making meaningful contributions in this ever-evolving field.

When considering my decision to pursue the MS in Applied Data Science Program at UChicago, I was influenced by several compelling factors. Firstly, the curriculum was a standout feature. The core courses provide a comprehensive exploration of the theoretical foundations of data science, ranging from fundamental concepts like linear regression to cutting-edge techniques such as deep learning. Additionally, the availability of elective courses allows for a deeper dive into specific subjects. I was specially intrigued by Bayesian Methods and ML Ops electives. Lastly, the allure of Chicago itself, with its vibrant atmosphere and rich culture, played a part in finalizing my decision.

One of my favorite aspects of being a student at UChicago is the university's renowned reputation for academic excellence. The rigorous curriculum and intellectual environment at UChicago provide a stimulating and well-structured learning experience.

My favorite class at UChicago so far has been Bayesian Methods. This course captivated my interest due to the intriguing concept of frequentist vs. Bayesian approaches. Exploring the principles and applications of Bayesian statistics sparked my curiosity and made me realize the immense potential and future opportunities in this field.

Outside of the program, I thoroughly enjoy exploring the vibrant city of Chicago. I relish visiting art galleries, attending live performances, and immersing myself in the city's renowned culinary scene.

What excites me right now about the field of data science is the concept of prompt engineering and its potential. By carefully designing prompts, we can guide machine learning models to generate desired outputs, enabling us to tackle complex problems and extract valuable insights. This innovative approach not only enhances the interpretability and control of machine learning systems but also opens up new possibilities for driving impactful advancements in data science.

Rather than merely learning existing concepts, focus on developing the ability to absorb and adapt to new ideas. View the program not only as a source of knowledge but also as a pathway to explore and seek out new advancements in data science. Cultivate a curiosity-driven approach and a willingness to stay updated with the latest developments, as this will be crucial for long-term success in this ever-evolving field.

Bogotá, Colombia

HP Inc, Center of Excellence Sales Analytics, Data Scientist

I worked for the Latin American Sales Team at HP inc, performing multiple data analyses and project evaluations.

Professor's experience, Curriculum, The University ranking position

I had the opportunity to connect with professors with an outstanding experience. I also met extremely talented people from different countries and backgrounds which led me to increase my professional network and get a better understanding of different cultures.

This degree helped me gain visibility within my professional network and it allowed me to advance from an analyst position in a sales team to a global data science team.

Machine Learning because I had the chance to deepen my knowledge of advanced ML algorithms and apply them to real use cases. Yuri Balasanov provided great guidance and resources to understand these advanced topics.

Ask as many questions as you can, especially if you could link those questions with real-world cases or examples.

I enjoy reading Latin American literature.

This field allows me to solve business problems with multiple possibilities of methodologies that range from simple descriptive analysis to complex modeling pipelines.

Always keep in mind that behind a data science solution, there is a context or business problem. If you can't answer what is the problem you're trying to solve or the purpose of any analysis, you need more time to understand the context, instead of making the solution more complex.

Philadelphia, PA

Chicago, IL

University of Chicago, Biological Sciences Division – Data for the Common Good, Healthcare Data Scientist

Working as an Epidemiologist in Pediatrics.

1. I wanted to expand my work projects into new areas; 2. Data science is more efficient than biostatistics; and 3. UChicago is an amazing school.

Being part of some amazing teams. I learned a lot from colleagues with different backgrounds, talents, and interests.

Because of this program, I have my dream job working on large-scale machine learning in healthcare.

It is hard to choose! Data Mining was the class that made me feel like I was really on my way to becoming a data scientist.

Know why you want to go into data science. If you have a current field, what is the current state of analytics, and what would data science bring to it?

I'm taking pottery classes and enjoy how challenging (completely impossible) it is. It's the exact opposite of the workday and requires all of your concentration, so it's a great break.

I feel like a lot of people will say ChatGPT and the other LLMs, but I'm more excited about efforts to bring more underrepresented students into the field, like the UChicago Data Science Institute's Summer Lab, which provides a social environment and mentoring as well as learning about data science.

Panic early (that is, when you get the assignment) rather than waiting to panic until the day before it's due.

Eden Prairie, MN

Executive Vice President of Strategy at Field Nation

Develop significantly sharper, stronger, and broader set of data and analytical skills that drive more success in my role as a strategy executive; Obtain training in advanced machine learning and AI technologies that can help me become a thought leader in my organization and help me spearhead innovation for new breakthrough market products and solutions for my employer company.

Networking with and learning from an amazing group of professors and students; the culture of openness for big questions; the urge to always connect learnings with applications, especially at work. I did my graduation project on my company data and it drove a lot of positive change.

It helped me become significantly more analytical in the way I solve problems and equipped me with all the tools I need to leverage any data of any format to solve the problem. Which is a key component of my career as a strategy leader.

Data Science for Consulting with Greg Green, PhD. For me as a Strategy leader, this was where data met with Strategy, This was where the analytics married with the so what. The class was focused on not only telling stories with data and findings but also on the business value of the problem getting solved and on presenting the business case with data in an elegant way. It was a great class for my type of work.

Spending time with family.

I am very excited about the potential for generative AI, especially in the area of Field Services, where my current focus is.

Polish up on key fundamental skills that will make your experience more smooth and will prepare you to learn and absorb more. These fundamentals are: Statistics, Linear Algebra, Python, SQL, and Data base design. Master the foundations well. Just because you will learn Data Science and AI does not mean you be shallow at Statistics. A graduate of UChicago must be very solid at Stats as it's always the foundation. Master the art of story telling with data. Become so solid at connecting your analysis with the business case and the value of the problem you are solving.

China

Data scientist at QuantumBlack, AI by McKinsey

Financial Analyst

The program has solid reputation in data science industry. It also provides innovative curriculums that integrate advanced topics and trends in the field.

The faculty at UChicago creates a diverse and inclusive environment where students from various backgrounds felt valued and empowered to excel.

The program advanced my career by providing systematic learning structure, practical project experience, and inspiring discussion environment. The degree also helped me open doors to new opportunities.

Big data platform is one of my favorite classes because it provides a comprehensive overview of m advanced technology infrastructures, which is very difficult to grasp without the instructors' guidance and insights. It builds my foundations of the big data exploration.

Reading, museums, YouTube

With the emergence of Generative AI, I consider myself fortunate as a data scientist to have the opportunity to delve into this exciting and cutting-edge field.

Leverage the opportunity of starting a new journey. Don’t limit yourself on what you known, but explore on the unknowns. Discover your true intent and passion. You will derive greater satisfaction, motivation, and focus!

Page: https://datascience.uchicago.edu/education/m programs/ms-in-applied-data-science/explore-campus/ (https://datascience.uchicago.edu/education/r programs/ms-in-applied-data-science/explore-campus/)

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Page: https://datascience.uchicago.edu/education/m programs/ms-in-applied-data-science/in-person-program/ (https://datascience.uchicago.edu/education/r programs/ms-in-applied-data-science/in-person-program/)

MS in Applied Data Science

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Your Career Success

Take the next step to advance your career with UChicago's MS in Applied Data Science.

The In-Person program admits full- and part-time students for entrance in Autumn quarter annually. The full-time, in-person MS in Applied Data Science program isSTEM/OPT eligible. Please visit theOnlineprogram page if you are interested in those full- and part-time options.

Your Engagement

If you learn best in an in-person classroom environment and prefer to live in or near to Chicago, IL, theMaster's in Applied Data ScienceIn-Person program is ideal for you. Your high-tech classrooms are located in downtown Chicago (NBC Tower,Gleacher Center), and you will have access to tailored, in-person student services and program amenities. You will complete 12 courses for the MS degree and can graduate in 12-18 monthsfull-time.Part-timeoptions available. Most courses are from 6-9pm Monday through Thursday with some offered on Fridays and Saturdays. This allows you to work in an internship and/or job during the program. Select courses are offered during the day. Learn more aboutTuition, Fees, & Aid.

Your Student Experience

As an In-Person program student, you will have access to expertfaculty and instructorswith industry expertise, a full-servicestudent affairs team,and an unparalleled network ofglobal alumni.Our teamis passionate about supporting a Signature Student Experience tailored to your needs.

Program Director,Greg Green, PhD

Your Outcomes

Your success is our success. Graduates of UChicago's Master's in Applied Data Science program consistently demonstrate competitive outcomes. You will have full access to our tailored career services and external partnerships team to help you advance your career in data science–whether you are launching your career, interested in pivoting, or want to move up within your current company. You can take advantage of in-house career services advising and coaching, tailored networking events, career fairs to connect directly with employers, internship placement support, and more.

By and For Data Science Innovators

You will earn UChicago's Master's in Applied Data Science by successfully completing 12 courses (6 core, 4 elective, 2 Capstone) and our tailored Career Seminar*.

To keep up with the rapidly evolving field and job market, you will be challenged by our rigorous curriculum that is designed by and for data science innovators and leaders. Courses are reviewed annually to ensure the content keeps pace with the rapidly evolving landscape of data science.

You have the flexibility to pursue theMaster's in Applied Data Sciencedegree on a part- or full-time schedule. Part-time students enroll in two courses each quarter and take their courses in the evenings or on Saturdays. Full-time students take three courses per quarter. Some of their courses may be offered during the day. All courses are taught at the NBC Tower or Gleacher Center in downtown Chicago.

Foundational Courses (noncredit, optional)

Foundational noncredit courses are designed and taught by Master's in Applied Data Sciencefaculty and instructors. These optional courses—available at no additional cost— provide the basis for the rigorous Applied Data Science degree. Course content undergirds the theoretical, strategic, and practical data science studies you will encounter in the rest of the curriculum.Beginning in academic year 2024-25, all entering students will complete a required online Foundational Skills Assessment. The assessment helps faculty and advisors understand how to best support you once you begin in the program. The four Foundational noncredit courses are listed below. Please note that Introduction to Statistical Concepts and R are considered pre-quarter courses and therefore take place during the 5 weeks leading up to your first quarter in the program. All Foundational courses are completed virtually for all students regardless of enrollment in the In-Person or Online Program.Read More +Show Less -

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Read More +Show Less -

Career Seminar (noncredit, required)

Increasingly, employers demand data scientists and analytics professionals who are not only technically excellent but also superior collaborators, reliable communicators, ethical problem-solvers, and more. To ensure that our graduates remain as top candidates in the job market, we provide tailored support through our required, multi-quarter Career Seminar. The Seminar is designed to counter-balance students' time commitments in other courses. *Students with significant, relevant full-time work experience may be eligible to waive this requirement.

Core Courses (6)

You will complete six core courses toward yourMaster's in Applied Data Sciencedegree. Core courses allow you to build your theoretical data science knowledge and practice applying this theory to examine real-world business problems.

Elective Courses (4)

Explore advanced analytics strategies and applications. You will complete four required electives toward your 12-course degree program. We continually add electives to evolve with the data science landscape. Past electives include: Advanced Computer Vision with Deep Learning, Advanced Machine Learning and Artificial Intelligence, Bayesian Methods, Data Science for Algorithmic Marketing, Data Visualization Techniques, Digital Marketing Analytics in Theory and Practice, Financial Analytics, Health Analytics, Machine Learning Operations, Natural Language Processing and Cognitive Computing, Real Time Intelligent Systems, Reinforcement Learning, Supply Chain Optimization.

Capstone (2)

The requiredCapstone Projectis completed over two quarters and covers research design, implementation, and writing. Full-time students start their Capstone Project in their third quarter. Part-time students generally begin the Capstone Project two quarters before their projected graduation quarter. Students choose among industry- and research-focused projects.

Get in Touch

Noncredit CoursesCareer Seminar (Seminar, required)The Pass/Fail Career Seminar supports the development of industry professional skills, job and/or internship searches, and other in-demand areas of competency among today's employers. Students enroll in the Career Seminar each quarter in order to engage in unique content throughout their degree program. Students with significant full-time work experience may be eligible to waive this course. 0 units, no cost.Introduction to Statistical Concepts (Foundational, optional)This course is held in the five weeks leading up to the start of your first quarter and provides general exposure to basic statistical concepts necessary for success in advanced courses in the program. 0 units, no cost.R for Data Science (Foundational, optional)This course is held the five weeks leading up to the start of your first quarter and is an introduction to the essential concepts and techniques for the statistical computing language R. 0 units, no cost.Python for Data Science (Foundational, optional)This course is held concurrently with the first five weeks of your first quarter in the program and starts with an introduction to the Python programming language basic syntax and environment. 0 units, no cost.Advanced Linear Algebra for Machine Learning (Foundational, optional)This course is held concurrently with the second five weeks of your first quarter in the program and is focused on the theoretical concepts and real-life applications of linear algebra for machine learning. 0 units, no cost.Brush up on the Basics (Optional resource)If you would like to gauge your preparation in Foundational course topics, we recommend specific Coursera courses that cover very similar topics.If you would like to gauge your preparation in Foundational course topics, we recommend specific Coursera courses that cover very similar topics.Four Coursera courses cover very similar topics. You can review the Coursera curricula to see if you are already well-prepared, or if you like, study their materials to brush up on some or all of these topics.Mathematics for Machine Learning: Linear Algebra (offered by University College London)Basis Data Descriptors, Statistical Distributions, and Application to Business Decisions (offered by Rice University)Python for Data Science, AI, & Development (offered by IBM)Data Analysis with R Programming (offered by Google)

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Core CoursesTime Series Analysis and ForecastingTime Series Analysis is a science as well as the art of making rational predictions based on previous records. It is widely used in various fields in today's business settings.Statistical Models for Data ScienceIn a traditional linear model, the observed response follows a normal distribution, and the expected response value is a linear combination of the predictors. Since Carl Friedrich Gauss (1777-1855) and Adrien-Marie Legendre (1752-1833) created this linear model framework in the early 1800s, the "Linear Normal" assumption has been the norm in statistics/data science for almost two centuries. New methods based on probability distributions other than Gaussian appeared only in the second half of the twentieth century. These methods allowed working with variables that span a broader variety of domains and probability distributions. Besides, methods for the analysis of general associations were developed that are different from the Pearson correlation.Machine Learning IThis course is aimed at providing students an introduction to machine learning with data mining techniques and algorithms. It gives a rigorous methodological foundation in analytical and software tools to successfully undertake projects in Data Science. Students are exposed to concepts of exploratory analyses for uncovering and detecting patterns in multivariate data, hypothesizing and detecting relationships among variables, conducting confirmatory analyses, and building models for predictive and descriptive purposes. It will present predictive modeling in the context of balancing predictive and descriptive accuracies.Machine Learning IIThe objective of this course is three-folds–first, to extend student understanding of predictive modeling with machine learning concepts and methodologies from Machine Learning 1 into the realm of Deep Learning and Generative AI. Second, to develop the ability to apply those concepts and methodologies to diverse practical applications, evaluate the results and recommend the next best action. Third, to discuss and understand state-of-the machine learning and deep learning research and development and their applications.Data Engineering Platforms for Analytics or Big Data and Cloud ComputingData Engineering Platforms teaches effective data engineering—an essential first step in building an analytics-driven competitive advantage in the market.Big Data and Cloud Computing teaches students how to approach big data and large-scale machine learning applications. There is no single definition of big data and multiple emerging software packages exist to work with it, and we will cover the most popular approaches.Leadership and Consulting for Data ScienceThe Leadership and Consulting for Data Scientist course is focused on:• Learning techniques and proven methods to effectively grasp the business domain including organizational dynamics of consultancies and client organizations• Developing relevant solutions to enterprise problems using the sampling methods, traditional statistical techniques and modern machine learning models that deliver value to the organization• Practicing successful project delivery through effective data discovery, influential team membership and leadership, project management, and communication at every stageThis course will not only make you a better data scientist; it will make you and your analyses more approachable, more persuasive, and ultimately more successful.Data Science Capstone ProjectThe required Capstone Project is completed over two quarters and covers research design, implementation, and writing.Full-time students start their capstone project in their third quarter. Part-time students generally begin the capstone project in their fifth quarter.

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Data Engineering Platforms for Analytics or Big Data and Cloud ComputingData Engineering Platforms teaches effective data engineering—an essential first step in building an analytics-driven competitive advantage in the market.Big Data and Cloud Computing teaches students how to approach big data and large-scale machine learning applications. There is no single definition of big data and multiple emerging software packages exist to work with it, and we will cover the most popular approaches.

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Sample Elective CoursesAdvanced Computer Vision with Deep LearningComputer vision is the field of computer science that focuses on creating digital systems that can process, analyze, and make sense of visual data in the same way that humans do. Deep learning is a subset of machine learning and a branch of Artificial Intelligence (AI). It involves the training, deployment, and application of large complex neural network architectures to solve cutting-edge problems. Deep Learning has become the primary approach for solving cognitive problems such as Computer Vision and Natural Language Processing (NLP) and has had a massive impact on various industries such as healthcare, retail, automotive, industrial automation, and agriculture. This course will enable students to build Deep Learning models and apply them to computer vision tasks such as object recognition, detection, and segmentation. Students will gain an in-depth understanding of the Deep Learning model development process, tools, and frameworks. Although the focus of the course will primarily be computer vision, students will work on both image and nonimage datasets during class exercises and assignments. Students will gain hands-on experience in popular libraries such as Tensorflow, Keras, and PyTorch. Students will also learn to apply state of the art models such as ResNet, EfficientNet, RCNNs, YOLO, Vision Transformers, etc. for computer vision and work on datasets such as CIFAR, ImageNet, MS COCO, and MPII Human Poses.Advanced Machine Learning and Artificial IntelligenceSince the era of big data started, challenges associated with data analysis have grown significantly in different directions: First, the technological infrastructure had to be developed that can hold and process large amounts of data from different sources and of multiple not always well formalized formats. Second, data analysis methods had to be reviewed, selected and modified to work in distributed computational environments like combinations of in-house clusters of servers and cloud. But the biggest challenge of all is learning to think differently in order to ask new types of questions that could not be answered by analyses of less complex data streams with less complex technological infrastructure. In recent years significant progress has been achieved in creating technological ecosystems for big data analysis. Innovative technologies such as open source projects MapReduce, Hadoop, Spark, Storm, Kafka, TensorFlow, H2O, etc. allowed us to look at depths of data unseen before. We now have a growing number of sources and educational courses introducing these new tools. However, developing new data analysis methods appropriate to these new data ecosystems is more difficult than it appears.Bayesian Machine Learning with Generative AI ApplicationsThis course provides a strong theoretical and practical skillset for probabilistic machine learning applications. Bayesian inference and modeling methods are important for several areas including prediction, decision making, and risk assessment where modeling the uncertainty is needed. The course begins with an introduction to Bayesian statistical analysis, covering the foundations of Bayesian inference and the application of Bayes' theorem for statistical inference. We then introduce Bayesian networks, which offer a powerful graphical tool for modeling complex systems and making probabilistic inferences. The course then advances to cover more sophisticated topics such as Markov Chain Monte Carlo (MCMC) methods for sampling from complex probability distributions, hierarchical models, and model selection techniques. The final three weeks are dedicated to cutting-edge methodologies like Generative Deep Learning, Variational Autoencoders, and Bayesian Neural Networks, all rooted in Bayesian Machine Learning. Upon completion, students will be equipped to apply Bayesian methods to a wide range of real-world problems in fields such as engineering, business, finance, and public policy, addressing challenges like missing data or training AI models that are able to say 'I don't know'.Data Science for Algorithmic MarketingThis course focuses on marketing science methods and algorithms for undertaking competitive analysis in the digital landscape: market segmentation, mining databases for effective digital marketing, design of new digital and traditional products, forecasting sales and product diffusion, real time product positioning, intra omni-channel optimization and inter omni-channel resource allocation, and pricing across both omni-channel marketing effectiveness and

ROI. The course will use a combination of lecture, in-class discussions, group assignments, and a final group project. The course lays special emphasis on algorithms. Hence it draws heavily from the fields of optimization, machine-learning based recommendation systems, association rules, consumer choice models, Bayesian estimation, experimentation and analysis of covariance, advanced visualization techniques for mapping brand perceptions, and analysis of social media data using advanced NLP techniques.Data Visualization TechniquesIn today's data driven enterprise, data storytelling using effective visualization strategies is an essential skill for analytics practitioners in almost every field to explore and present data. This course focuses on modern data visualization technologies, tools, and techniques to convert raw data into actionable information. Modern data visualization tools are at the forefront of the "self-service analytics" architectures which are decentralizing analytics and breaking down IT bottlenecks for business experts. Moreover, with its foundations rooted in statistics, psychology, and computer science, data visualization shows you how to better understand the data, present clear evidence of your findings to your intended audience and tell engaging data stories through charts and graphics. This course is designed to introduce data visualization as a medium of effective communication using strategic storytelling, and the basis for interactive information dashboards.Digital Marketing Analytics in Theory and PracticeSuccessfully marketing brands today requires a well-balanced blend of art and science. This course introduces students to the science of web analytics while casting a keen eye toward the artful use of numbers found in the digital space. The goal is to provide marketers with the foundation needed to apply data analytics to real-world challenges they confront daily in their professional lives. Students will learn to identify the web analytic tool right for their specific needs; understand valid and reliable ways to collect, analyze, and visualize data from the web; and utilize data in decision making for their agencies, organizations or clients. By completing this course, students will gain an understanding of the motivations behind data collection and analysis methods used by marketing professionals; learn to evaluate and choose appropriate web analytics tools and techniques; understand frameworks and approaches to measuring consumers' digital actions; earn familiarity with the unique measurement opportunities and challenges presented by New Media; gain hands-on, working knowledge of a step-by-step approach to planning, collecting, analyzing, and reporting data; utilize tools to collect data using today's most important online techniques: performing bulk downloads, tapping APIs, and scraping webpages; and understand approaches to visualizing data effectively.Data Science for HealthcareGiven the breadth of the field of health analytics, this course will provide an overview of the development and rapid expansion of analytics in healthcare, major and emerging topical areas, and current issues related to research methods to improve human health. We will cover such topics as security concerns unique to the field, research design strategies, and the integration of epidemiologic and quality improvement methodologies to operationalize data for continuous improvement. Students will be introduced to the application of predictive analytics to healthcare. Students will understand factors impacting the delivery of quality and safe patient care and the application of data-driven methods to improve care at the healthcare system level, design approaches to answering a research question at the population level, become familiar with the application of data analytics to impacting care at the provider level through Clinical Decision Systems, and understand the process of a Clinical Trial.Financial AnalyticsThis course concentrates on the following topics: review of financial markets and assets traded on them; main characteristics of financial analytics: returns, yields, volatility; review of stochastic models of market price and their statistical representations; concept of arbitrage, elements of arbitrage pricing approach; principles of volatility analyses, implied vs. realized volatility; correlation, cointegration and other relationships between various financial assets; market risk analytics and management of portfolios of financial assets. The course puts special emphasis on covering main steps of building analytics from visualizing data and building intuition about their structure and patterns to selecting appropriate statistical method to interpretation of the results and building analytical models. Topics are illustrated by data analysis projects using R. Basic familiarity with R is a requirement.Generative AI PrinciplesThis course dives into the realm of Generative AI, offering a comprehensive look into the world of Large Language Models (LLMs), image generation techniques, and the fusion of vision and text through multimodal models. Drawing from core concepts in neural networks, transformers, and advanced techniques such as prompt engineering, vision prompting, and multimodality representation, students will explore the capabilities, applications, and ethical considerations of generative models. This course culminates in hands-on projects, allowing participants to apply theory to practical scenarios.Machine Learning OperationsThe objective of this course is two-fold: first, to understand what Machine Learning Operations (MLOps) is and why it is a key component in enterprise production deployment of machine learning projects, and second, to expose students to software engineering, model engineering and state-of-the-art deployment engineering with hands-on platform and tools experience. This course crosses the chasm that separates machine learning projects/experiments and enterprise production deployment. It covers three pillars in MLOps: software engineering such as software architecture, Continuous Integration/Continuous Delivery and data versioning; model engineering such as AutoML and A/B experimentation; and deployment engineering such as docker containers and model monitoring. The course focuses on best practices in the industry that are critical to enterprise production deployment of machine learning projects. Having completed this course, a student understands the machine learning lifecycle and what it takes to go from ideation to operationalization in an enterprise environment. Furthermore, students get exposure to state-of-the-art MLOps platforms such as allegro, xpresso, Dataiku, LityxIQ, DataRobot, AWS Sagemaker, and technologies such as gitHub, Jenkins, slack, docker, and kubernetes.Natural Language Processing and Cognitive ComputingExtracting actionable insights from unstructured text and designing cognitive applications have become significant areas of application for analytics. Students in this course will learn foundations of natural language processing, including: concept extraction; text summarization and topic modeling; part of speech tagging; named entity recognition; semantic roles and sentiment analysis. For advanced NLP applications, we will focus on feature extraction from unstructured text, including word and paragraph embedding and representing words and paragraphs as vectors. For cognitive analytics section of the course, students will practice designing question answering systems with intent classification, semantic knowledge extraction and reasoning under uncertainty. Students will gain hands-on expertise applying Python for text analysis tasks, as well as practice with multiple IBM Watson services, including: Watson Discovery, Watson Conversation, Watson Natural Language Classification and Watson Natural Language Understanding.Real Time Intelligent SystemsDeveloping end-to-end automation and intelligent systems is now the most advanced area of application for analytics. Building such systems requires proficiency in programming, understanding of computer systems, as well as knowledge of related analytical methodologies, which are the skills that this course aims to teach to students. The course focuses on python and is tailored for students with basic programming knowledge in python. The course is partially project based. During the first three sessions, we will review basic python concepts and then learn more advanced python and the ways to use python to handle large data flows. The later sessions are project based and will focus on developing end-to-end analytical solutions in the following areas: Finance and trading, blockchains and crypto-currencies, image recognition, and video surveillance systems.Reinforcement LearningThis course is an introduction to reinforcement learning, also known as neuro-dynamic programming. It discusses basic and advanced concepts in reinforcement learning and provides several practical applications. Reinforcement learning refers to a system or agent interacting with an environment and learning how to behave optimally in such an environment. An environment typically includes time, actions, states, uncertainty and rewards. Reinforcement learning combines neural networks and dynamic programming to find an optimal behavior or policy of the system or agent in a complex environment setting. Neural network approximations are used to circumvent the well-known 'curse of dimensionality' which has been a barrier to solving many practical applications. Dynamic programming is the key learning mechanism that the system or the agent uses to interact with the environment and improve its performance. Students will master key learning techniques and will become proficient in applying these techniques to complex stochastic decision processes and intelligent control.Supply Chain Optimization"Big Data" continues to grow exponentially in our large-scale transactional world where 100,000s of SKUs and millions of customers are interacting with 1:1 offers that include differential pricing, shipping timing/costs and even made to order "custom" product configurations. These consumer behaviors are quickly advancing the availability of new data and techniques within the discipline of Data Science. This elective course will give students the opportunity to apply their skills in data visualization, data mining tools, predictive modeling, and advanced optimization techniques to address Supply Chain challenges. The course focuses on the use of Advanced Predictive Modeling, Machine Learning, AI and other Data Science insight and activation tools to automate and optimize the performance of the Supply Chain. Students will also learn how to optimize the performance of the Supply Chain from the lens of multiple related disciplines including: Sales Forecasting, Warehousing/Inventory Management, Promotion, Pricing, Logistics Network Optimization, Freight Cost Management, Manufacturing, Retail POS Information, Ecommerce, Consumer Data, and Product Design/Packaging. After completing this course, you will be prepared to work in any of the numerous specialty areas possible in the world of Supply Chain Management.

Advanced Computer Vision with Deep LearningComputer vision is the field of computer science that focuses on creating digital systems that can process, analyze, and make sense of visual data in the same way that humans do. Deep learning is a subset of machine learning and a branch of Artificial Intelligence (AI). It involves the training, deployment, and application of large complex neural network architectures to solve cutting-edge problems. Deep Learning has become the primary approach for solving cognitive problems such as Computer Vision and Natural Language Processing (NLP) and has had a massive impact on various industries such as healthcare, retail, automotive, industrial automation, and agriculture. This course will enable students to build Deep Learning models and apply them to computer vision tasks such as object recognition, detection, and segmentation. Students will gain an in-depth understanding of the Deep Learning model development process, tools, and frameworks. Although the focus of the course will primarily be computer vision, students will work on both image and nonimage datasets during class exercises and assignments. Students will gain hands-on experience in popular libraries such as Tensorflow, Keras, and PyTorch. Students will also learn to apply state of the art models such as ResNet, EfficientNet, RCNNs, YOLO, Vision Transformers, etc. for computer vision and work on datasets such as CIFAR, ImageNet, MS COCO, and MPII Human Poses.

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Advanced Machine Learning and Artificial IntelligenceSince the era of big data started, challenges associated with data analysis have grown significantly in different directions: First, the technological infrastructure had to be developed that can hold and process large amounts of data from different sources and of multiple not always well formalized formats. Second, data analysis methods had to be reviewed, selected and modified to work in distributed computational environments like combinations of in-house clusters of servers and cloud. But the biggest challenge of all is learning to think differently in order to ask new types of questions that could not be answered by analyses of less complex data streams with less complex technological infrastructure. In recent years significant progress has been achieved in creating technological ecosystems for big data analysis. Innovative technologies such as open source projects MapReduce, Hadoop, Spark, Storm, Kafka, TensorFlow, H2O, etc. allowed us to look at depths of data unseen before. We now have a growing number of sources and educational courses introducing these new tools. However, developing new data analysis methods appropriate to these new data ecosystems is more difficult than it appears.

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Bayesian Machine Learning with Generative AI ApplicationsThis course provides a strong theoretical and practical skillset for probabilistic machine learning applications. Bayesian inference and modeling methods are important for several areas including prediction, decision making, and risk assessment where modeling the uncertainty is needed. The course begins with an introduction to Bayesian statistical analysis, covering the foundations of Bayesian inference and the application of Bayes' theorem for statistical inference. We then introduce Bayesian networks, which offer a powerful graphical tool for modeling complex systems and making probabilistic inferences. The course then advances to cover more sophisticated topics such as Markov Chain Monte Carlo (MCMC) methods for sampling from complex probability distributions, hierarchical models, and model selection techniques. The final three weeks are dedicated to cutting-edge methodologies like Generative Deep Learning, Variational Autoencoders, and Bayesian Neural Networks, all rooted in Bayesian Machine Learning. Upon completion, students will be equipped to apply Bayesian methods to a wide range of real-world problems in fields such as engineering, business, finance, and public policy, addressing challenges like missing data or training AI models that are able to say 'I don't know'.

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Data Science for Algorithmic MarketingThis course focuses on marketing science methods and algorithms for undertaking competitive analysis in the digital landscape: market segmentation, mining databases for effective digital marketing, design of new digital and traditional products, forecasting sales and product diffusion, real time product positioning, intra omni-channel optimization and inter omni-channel resource allocation, and pricing across both omni-channel marketing effectiveness and ROI. The course will use a combination of lecture, in-class discussions, group assignments, and a final group project. The course lays special emphasis on algorithms. Hence it draws heavily from the fields of optimization, machine-learning based recommendation systems, association rules, consumer choice models, Bayesian estimation, experimentation and analysis of covariance, advanced visualization techniques for mapping brand perceptions, and analysis of social media data using advanced NLP techniques.

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Data Visualization TechniquesIn today's data driven enterprise, data storytelling using effective visualization strategies is an essential skill for analytics practitioners in almost every field to explore and present data. This course focuses on modern data visualization technologies, tools, and techniques to convert raw data into actionable information. Modern data visualization tools are at the forefront of the "self-service analytics" architectures which are decentralizing analytics and breaking down IT bottlenecks for business experts. Moreover, with its foundations rooted in statistics, psychology, and computer science, data visualization shows you how to better understand the data, present clear evidence of your findings to your intended audience and tell engaging data stories through charts and graphics. This course is designed to introduce data visualization as a medium of effective communication using strategic storytelling, and the basis for interactive information dashboards.

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Digital Marketing Analytics in Theory and PracticeSuccessfully marketing brands today requires a well-balanced blend of art and science. This course introduces students to the science of web analytics while casting a keen eye toward the artful use of numbers found in the digital space. The goal is to provide marketers with the foundation needed to apply data analytics to real-world challenges they confront daily in their professional lives. Students will learn to identify the web analytic tool right for their specific needs; understand valid and reliable ways to collect, analyze, and visualize data from the web; and utilize data in decision making for their agencies, organizations or clients. By completing this course, students will gain an understanding of the motivations behind data collection and analysis methods used by marketing professionals; learn to evaluate and choose appropriate web analytics tools and techniques; understand frameworks and approaches to measuring consumers' digital actions; earn familiarity with the unique measurement opportunities and challenges presented by New Media; gain hands-on, working knowledge of a step-by-step approach to planning, collecting, analyzing, and reporting data; utilize tools to collect data using today's most important online techniques: performing bulk downloads, tapping APIs, and scraping webpages; and understand approaches to visualizing data effectively.

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Data Science for HealthcareGiven the breadth of the field of health analytics, this course will provide an overview of the development and rapid expansion of analytics in healthcare, major and emerging topical areas, and current issues related to research methods to improve human health. We will cover such topics as security concerns unique to the field, research design strategies, and the integration of epidemiologic and quality improvement methodologies to operationalize data for continuous improvement. Students will be introduced to the application of predictive analytics to healthcare. Students will understand factors impacting the delivery of quality and safe patient care and the application of data-driven methods to improve care at the healthcare system level, design approaches to answering a research question at the population level, become familiar with the application of data analytics to impacting care at the provider level through Clinical Decision Systems, and understand the process of a Clinical Trial.

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Financial AnalyticsThis course concentrates on the following topics: review of financial markets and assets traded on them; main characteristics of financial analytics: returns, yields, volatility; review of stochastic models of market price and their statistical representations; concept of arbitrage, elements of arbitrage pricing approach; principles of volatility analyses, implied vs. realized volatility; correlation, cointegration and other relationships between various financial assets; market risk analytics and management of portfolios of financial assets. The course puts special emphasis on covering main steps of building analytics from visualizing data and building intuition about their structure and patterns to selecting appropriate statistical method to interpretation of the results and building analytical models. Topics are illustrated by data analysis projects using R. Basic familiarity with R is a requirement.

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Generative AI PrinciplesThis course dives into the realm of Generative AI, offering a comprehensive look into the world of Large Language Models (LLMs), image generation techniques, and the fusion of vision and text through multimodal models. Drawing from core concepts in neural networks, transformers, and advanced techniques such as prompt engineering, vision prompting, and multimodality representation, students will explore the capabilities, applications, and ethical considerations of generative models. This course culminates in hands-on projects, allowing participants to apply theory to practical scenarios.

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Machine Learning OperationsThe objective of this course is two-fold: first, to understand what Machine Learning Operations (MLOps) is and why it is a key component in enterprise production deployment of machine learning projects, and second, to expose students to software engineering, model engineering and state-of-the-art deployment engineering with hands-on platform and tools experience. This course crosses the chasm that separates machine learning projects/experiments and enterprise production deployment. It covers three pillars in MLOps: software engineering such as software architecture, Continuous Integration/Continuous Delivery and data versioning; model engineering such as AutoML and A/B experimentation; and deployment engineering such as docker containers and model monitoring. The course focuses on best practices in the industry that are critical to enterprise production deployment of machine learning projects. Having completed this course, a student understands the machine learning lifecycle and what it takes to go from ideation to operationalization in an enterprise environment. Furthermore, students get exposure to state-of-the-art MLOps platforms such as allegro, xpresso, Dataiku, LityxIQ, DataRobot, AWS Sagemaker, and technologies such as gitHub, Jenkins, slack, docker, and kubernetes.

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Natural Language Processing and Cognitive ComputingExtracting actionable insights from unstructured text and designing cognitive applications have become significant areas of application for analytics. Students in this course will learn foundations of natural language processing, including: concept extraction; text summarization and topic modeling; part of speech tagging; named entity recognition; semantic roles and sentiment analysis. For advanced NLP applications, we will focus on feature extraction from unstructured text, including word and paragraph embedding and representing words and paragraphs as vectors. For cognitive analytics section of the course, students will practice designing question answering systems with intent classification, semantic knowledge extraction and reasoning under uncertainty. Students will gain hands-on expertise applying Python for text analysis tasks, as well as practice with multiple IBM Watson services, including: Watson Discovery, Watson Conversation, Watson Natural Language Classification and Watson Natural Language Understanding.

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Real Time Intelligent SystemsDeveloping end-to-end automation and intelligent systems is now the most advanced area of application for analytics. Building such systems requires proficiency in programming, understanding of computer systems, as well as knowledge of related analytical methodologies, which are the skills that this course aims to teach to students. The course focuses on python and is tailored for students with basic programming knowledge in python. The course is partially project based. During the first three sessions, we will review basic python concepts and then learn more advanced python and the ways to use python to handle large data flows. The later sessions are project based and will focus on developing end-to-end analytical solutions in the following areas: Finance and trading, blockchains and crypto-currencies, image recognition, and video surveillance systems.

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Reinforcement LearningThis course is an introduction to reinforcement learning, also known as neuro-dynamic programming. It discusses basic and advanced concepts in reinforcement learning and provides several practical applications. Reinforcement learning refers to a system or agent interacting with an environment and learning how to behave optimally in such an environment. An environment typically includes time, actions, states, uncertainty and rewards. Reinforcement learning combines neural networks and dynamic programming to find an optimal behavior or policy of the system or agent in a complex environment setting. Neural network approximations are used to circumvent the well-known ‘curse of dimensionality’ which has been a barrier to solving many practical applications. Dynamic programming is the key learning mechanism that the system or the agent uses to interact with the environment and improve its performance. Students will master key learning techniques and will become proficient in applying these techniques to complex stochastic decision processes and intelligent control.

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Supply Chain Optimization“Big Data” continues to grow exponentially in our large-scale transactional world where 100,000s of SKUs and millions of customers are interacting with 1:1 offers that include differential pricing, shipping timing/costs and even made to order “custom” product configurations. These consumer behaviors are quickly advancing the availability of new data and techniques within the discipline of Data Science. This elective course will give students the opportunity to apply their skills in data visualization, data mining tools, predictive modeling, and advanced optimization techniques to address Supply Chain challenges. The course focuses on the use of Advanced Predictive Modeling, Machine Learning, AI and other Data Science insight and activation tools to automate and optimize the performance of the Supply Chain. Students will also learn how to optimize the performance of the

Supply Chain from the lens of multiple related disciplines including: Sales Forecasting, Warehousing/Inventory Management, Promotion, Pricing, Logistics Network Optimization, Freight Cost Management, Manufacturing, Retail POS Information, Ecommerce, Consumer Data, and Product Design/Packaging. After completing this course, you will be prepared to work in any of the numerous specialty areas possible in the world of Supply Chain Management.

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Page: https://datascience.uchicago.edu/education/m programs/ms-in-applied-data-science/events-deadlines/ (https://datascience.uchicago.edu/education/r programs/ms-in-applied-data-science/events-deadlines/)

MS in Applied Data Science

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Deadlines

All program offerings, including the part-time, online begin in Autumn. Curious about the academic calendar? Please use the following link to access current and future calendar years:Academic Calendar

In-Person:

June 23, 2025 – Final Application Deadline

In-Person application decisions are released approximately 1 to 2 months after each respected deadline.

Online:

The online program operates on a rolling admissions basis. Those seeking the DSI Scholarship are encouraged to submit their application early.

*The application portal may close early if the cohort is filled.

Applications for the MS in Applied Data Science program must be submitted by the deadline to be considered for each respective round, with no exceptions. The international application deadline has passed. International students are welcome to apply when our 2026 application cycle opens.

Page: https://datascience.uchicago.edu/education/mprograms/ms-in-applied-data-science/course-progressions/ (https://datascience.uchicago.edu/education/rprograms/ms-in-applied-data-science/course-progressions/)

Flexible FormatsWe prepare you to advance in thecompetitive landscape of data science career paths with a focus on industry applications. Full- and Part-time options are available in both theOnlineandIn-Personformats. Full-time students take 3 classes per quarter (300 units). Part-time students take 2 classes per quarter (200 units).A sample schedule for the MBA/MS can be found on theBooth website.Please note: Courses offerings are subject to change. The Pass/Fail, Career Seminar is a degree requirement for all students unless eligible to waive. There is no tuition or fees for the Career Seminar. Similarly, the optional Foundational noncredit courses are available at no additional cost.

Sample Full-Time Schedule

Format: In-Person

Prequarter• 5 Weeks (Full-Time)

Optional

- Introduction to Statistical Concepts (Foundational)Optional (Optional)
- R for Data Science (Foundational)Optional (Optional)

Quarter 1• 10 Weeks (Full-Time)

Optional

- Python for Data Science (Foundational)Optional (Optional)
- Advanced Linear Algebra for Machine Learning (Foundational)Optional (Optional)

Core

- Statistical Models for Data ScienceLetter Grade (Letter Grade)

Core

- Leadership and Consulting for Data ScienceLetter Grade (Letter Grade)

Core (Choose 1)

- Data Engineering Platforms for Analytics or Big Data and Cloud ComputingLetter Grade (Letter Grade)

Seminar

- Career Seminar (Required)Pass/Fail (Pass/Fail)

Quarter 2• 10 Weeks (Full-Time)

Core

- Machine Learning ILetter Grade (Letter Grade)

Core

- Time Series Analysis and ForecastingLetter Grade (Letter Grade)

Elective

- Elective 1Letter Grade (Letter Grade)

Seminar

- Career Seminar (Required)Pass/Fail (Pass/Fail)

Quarter 3• 10 Weeks (Full-Time)

Core

- Machine Learning IILetter Grade (Letter Grade)

Elective

- Elective 2Letter Grade (Letter Grade)

Capstone

- Data Science Capstone ProjectLetter Grade (Letter Grade)

Seminar

- Career Seminar (Required)Pass/Fail (Pass/Fail)

Quarter 4• 10 Weeks (Full-Time)

Elective

- Elective 3Letter Grade (Letter Grade)

Elective

- Elective 4Letter Grade (Letter Grade)

Capstone

- Data Science Capstone ProjectLetter Grade (Letter Grade)

Seminar

- Career Seminar (Required)Pass/Fail (Pass/Fail)

Sample Part-Time Schedule

Format: Online

Prequarter• 5 Weeks (Part-Time)

Optional

- Introduction to Statistical Concepts (Foundational)Optional (Optional)
- R for Data Science (Foundational)Optional (Optional)

Quarter 1• 10 Weeks (Part-Time)

Optional

- Python for Data Science (Foundational)Optional (Optional)
- Advanced Linear Algebra for Machine Learning (Foundational)Optional (Optional)

Core

- Statistical Models for Data ScienceLetter Grade (Letter Grade)

Core

- Data Engineering Platforms for Analytics or Big Data and Cloud ComputingLetter Grade (Letter Grade)

Quarter 2• 10 Weeks (Part-Time)

Core

- Machine Learning ILetter Grade (Letter Grade)

Core

- Time Series Analysis and ForecastingLetter Grade (Letter Grade)

Quarter 3• 10 Weeks (Part-Time)

Core

- Machine Learning IILetter Grade (Letter Grade)

Core

- Leadership and Consulting for Data ScienceLetter Grade (Letter Grade)

Quarter 4• 10 Weeks (Part-Time)

Elective

- Elective 1Letter Grade (Letter Grade)

Elective

- Elective 2Letter Grade (Letter Grade)

Quarter 5• 10 Weeks (Part-Time)

Capstone

- Data Science Capstone ProjectLetter Grade (Letter Grade)

Elective

- Elective 3Letter Grade (Letter Grade)

Quarter 6• 10 Weeks (Part-Time)

Capstone

- Data Science Capstone ProjectLetter Grade (Letter Grade)

Elective

- Elective 4Letter Grade (Letter Grade)

Course Knowledge Base

Introduction to Statistical Concepts (Foundational)Optional: This course is held in the 5 weeks leading up to the start of your first quarter and provides general exposure to basic statistical concepts that are necessary for students to understand the content presented in more advanced courses in the program. 0 units, no cost.

R for Data Science (Foundational)Optional: This course is held in the 5 weeks leading up to the start of your first quarter and is an introduction to the essential concepts and techniques for the statistical computing language R. 0 units, no cost.

Python for Data Science (Foundational)Optional: This course is held concurrently with the first five weeks of your first quarter in the program and starts with an introduction to the Python programming language basic syntax and environment. 0 units, no cost.

Advanced Linear Algebra for Machine Learning (Foundational)Optional: If you are required to take this course it will be held concurrently with the second five weeks of your first quarter in the program. The advanced linear algebra course is focused on the theoretical concepts and real-life applications of linear algebra for machine learning. 0 units, no cost.

Statistical Models for Data ScienceLetter Grade: In a traditional linear model, the observed response follows a normal distribution, and the expected response value is a linear combination of the predictors. Since Carl Friedrich Gauss (1777-1855) and Adrien-Marie Legendre (1752-1833) created this linear model framework in the early 1800s, the “Linear Normal” assumption has been the norm in statistics/data science for almost two centuries. New methods based on probability distributions other than Gaussian appeared only in the second half of the twentieth century. These methods allowed working with variables that span a broader variety of domains and probability distributions. Besides, methods for the analysis of general associations were developed that are different from the Pearson correlation.

Leadership and Consulting for Data ScienceLetter Grade: Professional organizations see value in data science when it helps them to achieve their strategic goals, and the current job market likewise rewards data scientists who can use data to advance organizational interests, either as an external consultant or within internal operations teams. Data scientists can become successful (and highly marketable) leaders in today’s professional world, but they require an uncommon skill set: the strategic awareness to align data requirements with business requirements, the technical proficiency to choose a methodology appropriate to each new problem, and the communication skills to both execute the plan as part of a broader team and persuade others of their findings.

Data Engineering Platforms for Analytics or Big Data and Cloud ComputingLetter Grade: Data Engineering Platforms teaches effective data engineering—an essential first step in building an analytics-driven competitive advantage in the market. Big Data and Cloud Computing teaches students how to approach big data and large-scale machine learning applications. There is no single definition of big data and multiple emerging software packages exist to work with it, and we will cover the most popular approaches.

Career Seminar (Required)Pass/Fail: The Career Seminar (Pass/Fail) supports the development of industry professional skills, job and/or internship searches, and other in-demand areas of competency among today’s employers. Students enroll in the Career Seminar each quarter in order to engage in unique content throughout their degree program. Students with significant full-time work experience may be eligible to waive this course. 0 units, no cost.

Machine Learning ILetter Grade: This course is aimed at providing students an introduction to machine learning with data mining techniques and algorithms. It gives a rigorous methodological foundation in analytical and software tools to successfully undertake projects in Data Science. Students are exposed to concepts of exploratory analyses for uncovering and detecting patterns in multivariate data, hypothesizing and detecting relationships among variables, conducting confirmatory analyses, and building models for predictive and descriptive purposes. It will present predictive modeling in the context of balancing predictive and descriptive accuracies.

Time Series Analysis and ForecastingLetter Grade: Time Series Analysis is a science as well as the art of making rational predictions based on previous records. It is widely used in various fields in today’s business settings.

Elective 1Letter Grade: Elective offerings vary. Students will work with their academic advisor to select electives based on their interests and course availability. A list of sample electives (subject to change) appear at the bottom of theIn-PersonandOnline Programpages.

Machine Learning IILetter Grade: The objective of this course is three-folds–first, to extend student understanding of predictive modeling with machine learning concepts and methodologies from Machine Learning 1 into the realm of Deep Learning and Generative AI. Second, to develop the ability to apply those concepts and methodologies to diverse practical applications, evaluate the results and recommend the next best action. Third, to discuss and understand state-of-the machine learning and deep learning research and development and their applications.

Elective 2Letter Grade: Elective offerings vary. Students will work with their academic advisor to select electives based on their interests and course availability. A list of sample electives (subject to change) appear at the bottom of theIn-PersonandOnline Programpages.

Data Science Capstone ProjectLetter Grade: The required Capstone Project is completed over two quarters and covers research design, implementation, and writing.Full-time students start their capstone project in their third quarter. Part-time students generally begin the capstone project in their fifth quarter.

Elective 3Letter Grade: Elective offerings vary. Students will work with their academic advisor to select electives based on their interests and course availability. A list of sample electives (subject to change) appear at the bottom of theIn-PersonandOnline Programpages.

Elective 4Letter Grade: Elective offerings vary. Students will work with their academic advisor to select electives based on their interests and course availability. A list of sample electives (subject to change) appear at the bottom of theIn-PersonandOnline Programpages.

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Page: https://datascience.uchicago.edu/education/programs/ms-in-applied-data-science/capstone-projects/ (https://datascience.uchicago.edu/education/programs/ms-in-applied-data-science/capstone-projects/)

MS in Applied Data Science

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The culminating experience in theMaster's in Applied Data Scienceprogram is aCapstone Project where you'll put your knowledge and skills into practice. You will immerse yourself in a real business problem and will gain valuable, data driven insights using authentic data. Together with project sponsors, you will develop a data science solution to address organization problems, enhance analytics capabilities, and expand talent pools and employment opportunities. Leveraging the university's rich research portfolio, you also have the option to join aresearch-focused team.

Selected Capstone Projects

COPD Readmission and Cost Reduction Assessment

UChicago Applied Data Science students built data models and evaluated them across different frameworks. They determined that the resulting model is capable of rank-ordering readmission risk, allowing for flexibility and giving air to apply interventions to prevent readmission.

An NFL Ticket Pricing Study: Optimizing Revenue Using Variable And Dynamic Pricing Methods

UChicago Applied Data Science students strategized a play for an NFL team to implement ticket pricing that responds to changing factors, allowing the team the chance to fill more seats.

Using Image Recognition to Identify Yoga Poses

UChicago Applied Data Science students stretched themselves to build an app that uses a one-step neural network to examine images of yoga poses and recognize the poses in order to provide feedback to the app's yoga-practicing user.

Using Image Recognition to Measure the Speed of a Pitch

One UChicago Applied Data Science Capstone team developed an app that applied image recognition algorithms to measure the speed of a pitched baseball. Their ace app captured video, isolated the pitched ball, calculated the velocity of the pitch, and displayed this measurement so that users would be able to measure the speed of a pitch with their smartphones.

Real-Time Credit Card Fraud Detection

Credit card fraud puts consumers' identities at risk while credit card providers are forced to cover fraudulent charges. A team of Applied Data Science students carefully studied this problem – they created synthetic data that represented a large population of credit card users and built a model that catches credit card fraud in real time.

Interested in Becoming a Capstone Sponsor?

The Master's in Applied Data Science program accepts projects year-round for placement during the Spring and Autumn quarter, with the Spring quarter being the largest cohort. All projects must be submitted no later than one month prior to the beginning of the preferred starting quarter based on theUChicago academic calendar.Want more information? Find details and answers to FAQs in this Capstone Sponsorship Guidelines document—click hereto download the PDF.

Capstone Sponsor Incentives

Sponsors derive measurable benefits from this unique opportunity to support higher education. Partner organizations propose real-world problems, untested ideas or research queries. Students review them from the perspective of data scientists trained to generate actionable insights that provide long-term value. Through the project, Capstone partners gain access to a symbiotic pool of world-class students, highly accomplished instructors, and cited researchers, resulting in optimized utilization of modern data science-based methods, using your data. Further, for many sponsors, the project becomes a meaningful source of recruitment through the excellent pool of students who work on your project.

Capstone Sponsor Obligations

While there is no monetary cost or contract necessary to sponsor a project, we do consider this a partnership. Teams comprised of four students and guided by an instructor and subject matter expert are provided with expectations from the capstone sponsor and learning objectives, assignments, and evaluation requirements from instructors. In turn, Capstone partners should be prepared to provide the following:

A detailed problem statement with a description of the data and expected results

Two or more points of contact

Access to data relevant to the project by the first week of the applicable quarter

Engagement through regular meetings (typically bi-weekly) while classes are in session

If requested, a non-disclosure agreement that may be completed by the student team

Interested in Becoming a Capstone or Industry Research Partner?

Get in touch with us to submit your idea for a collaboration or ask us questions about how the partnership process works.

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programs/ms-in-applied-data-science/faqs/ (https://datascience.uchicago.edu/education/programs/ms-in-applied-data-science/faqs/)

Learn more about what makes our program unique.

David Uminsky, PhD – UChicago Data Science Institute, Executive Director

Application ProcessWhen will I receive my Master's in Applied Data Science admission decision?Typically, admissions decisions are released 1-2 months after each application deadline. Please note: Applications must be complete in order to be reviewed and for an admissions decision to be made. Please review theHow to Applypage.If I finish my Master's in Applied Data Science application before the deadline, will I receive my decision early?No, applications for the in-person program are typically released 1-2 months after the previous deadline. Remember your application must be complete in order to go into review.How do I submit the materials that will accompany my Master's in Applied Data Science application?Please review theHow to Applypage.The application portal for entrance in Autumn 2025 is now open.TheIn-Personprogram admits full- and part-time students for entrance in the autumn quarter annually. TheOnlineprogram admits full- and part-time students for entrance in autumn quarter.Does the admissions office allow recommenders to email their letter directly as an attachment to be included in an applicant’s file?Unfortunately, no. Recommenders must upload their letter of support by using the URL that is sent to them electronically by our online application system.Do I need to provide my recommenders with instructions?No. Forms for letters of recommendation, along with instructions for completing and submitting the letters, are sent electronically to recommenders once names are added to the online application.My recommender did not receive notification, can I resend it?Yes. If a recommender does not receive a URL to complete a recommendation, the applicant may resend a duplicate link from their online application, or request the recommender check their spam folder.Can I apply more than once for a start term in the Master's in Applied Data Science program if I was already denied during an earlier review period?No, you may only apply once per start term. You cannot apply for the same start term, if you were not offered admission previously. If you were not offered admission to the full-time program for autumn, you may apply again to theIn-PersonorOnlinefull-timeprogram the following autumn. If you were not offered admission to theIn-Personpart-time program, you may apply again the following autumn. If you were not offered admission to the Online part-time program, you may apply for the next autumn intake.The application portal for entrance in 2025-26 is now open.TheIn-PersonandOnlineprogram admits full- and part-time students for entrance in autumn quarter annually.What materials do I need to submit to accompany my application for admission to the Masters in Applied Data Science program?Please review thelist of application materialsto ensure your application file is complete.The application portal for entrance in 2025-26 is now open.TheIn-PersonandOnlineprogram admits full- and part-time students for entrance in autumn quarter annually.Once I upload my unofficial transcripts to my application, do I still need to provide an official transcript?One unofficial transcript from each university you attended must be uploaded within the application. An unofficial transcript for undergraduate coursework is still required for the application even if you hold an advanced degree(s). Please do not mail transcripts as part of your admission application; we only require unofficial uploads for application evaluation. If you are offered admission, one official transcript for each university you attended will be required at least one month prior to matriculation.Is the GRE or GMAT required for the Master's in Applied Data Science program?No, the GRE/GMAT is not required for admissions.I took the GRE and/or GMAT and want to include my score(s) with my Master's in Applied Data Science application.While the GRE/GMAT is not required, applicants can still submit their scores. The GRE school code is 1832; the GMAT school code is H9X-WG-70.Who is exempt from providing proof of English proficiency?Please refer to the University of Chicago’sEnglish Language Proficiencyrequirements.How will I be notified that I am admitted to the Master's in Applied Data Science program?Applicants of the Master’s in Applied Data Science program will be notified electronically via email.If I am admitted to the Master's in Applied Data Science program, what do I do next?Have official e-transcripts sent to

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If I finish my Master's in Applied Data Science application before the deadline, will I receive my decision early?No, applications for the in-person program are typically released 1-2 months after the previous deadline. Remember your application must be complete in order to go into review.

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Do I need to provide my recommenders with instructions?No. Forms for letters of recommendation, along with instructions for completing and submitting the letters, are sent electronically to recommenders once names are added to the online application.

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My recommender did not receive notification, can I resend it?Yes. If a recommender does not receive a URL to complete a recommendation, the applicant may resend a duplicate link from their online application, or request the recommender check their spam folder.

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Is the GRE or GMAT required for the Master's in Applied Data Science program?No, the GRE/GMAT is not required for admissions.

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I took the GRE and/or GMAT and want to include my score(s) with my Master's in Applied Data Science application.While the GRE/GMAT is not required, applicants can still submit their scores. The GRE school code is 1832; the GMAT school code is H9X-WG-70.

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International StudentsWhich Master's in Applied Data Science provides students with visas?Only the full-time,In-Personprogram is eligible for visa sponsorship. Applicants who need visa sponsorship are highly encouraged to apply to the earlier rounds.What is the total cost of tuition for the Master's in Applied Data Science program?As part of the I-20 or DS-2019 request process, theOffice of International Affairswill conduct a thorough review of financial documentation (e.g. bank statements, letter(s) of support, etc.) to verify that international students have access to the total cost of attendance which includes tuition, student fees, health insurance, books and supplies, and living expenses.Is the Master's in Applied Data Science an approved OPT/STEM program?Yes. Please visit the University of ChicagoOffice of International Affairs websitefor more information.Does the Master's in Applied Data Science program offer Curricular Practical Training (CPT)?Yes. Eligible students must be enrolled full-time for one academic year (or three consecutive quarters) to qualify. Students must also be able to present an employment offer letter to complete the application process. Please visit the University of ChicagoOffice of International Affairs websitefor more information.I have worked in the U.S. for more than two years. Does that mean that I am exempt from the TOEFL/IELTS requirement?No, you must take the TOEFL or IELTS if you do not meet the waiver criteria. Please refer to the University of Chicago’s English Language Proficiency requirements and theEnglish Language Proficiencysection of the FAQs for more details.

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Is the Master's in Applied Data Science an approved OPT/STEM program?Yes. Please visit the University of ChicagoOffice of International Affairs websitefor more information.

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Online ProgramIf I am a student in the In-Person Master's in Applied Data Science Program, may I take courses in the Online Program? Conversely, if I am a student in the Online Program, may I take courses in the In-Person program?Currently, students may only take Master’s in Applied Data Science courses in the modality in which they are officially enrolled.Do I need to be a US citizen or permanent resident to apply to Master's in Applied Data Science Online Program?No, students do not have to be US citizen or resident to partake in theOnline Program. Please note that theOnline Programisnoteligible for visa sponsorship.How will enrolling in Master's in Applied Data Science Online Program impact my schedule? Are classes held synchronously, asynchronously, or both?Classes generally take place on evenings and weekends in order to allow our students and instructors to maintain their professional schedules. The Master’s in Applied Data ScienceOnline Programis both synchronous and asynchronous. The same as ourIn-Personprogram, students are required to participate in weekly, live meetings with their instructors and peers, complete readings and coursework, and engage in discussion.Will enrolling in Master's in Applied Data

Science Online Program give me the opportunity to network with on-campus students, faculty/instructors, and advisors?Yes. All Master's in Applied Data Science Online Program students are invited to an annual 'Immersion Weekend' where attendees have opportunities to network and participate in other activities. On a rolling basis, our Career Services team will advertise additional opportunities to connect with employers and peers (e.g., virtual career fairs, virtual career advising/coaching appointments, and more).What value do employers place on the Master's in Applied Data Science Online degree?The value employers place on the Master's in Applied Data Science degree is significant. As they hire Data Scientist, Data Engineers, and Data Analysts from the University of Chicago the expectations for technical competence, communication and influence skills, and exposure to advanced Data Science evolving technologies is high. The skills learned in the program translate directly into practice due to the program's balance between theory and rigorous application experience developed in coursework and the Capstone project work delivered across the curriculum.Is the Master's in Applied Data Science Online program equally academically rigorous as the In-Person program?Yes. TheOnline Programcurriculum is overseen by the same faculty curriculum committee as the In-Person program. Both programs are jointly reviewed and are held to the same high standards. Additionally, both programs are granted by the University of ChicagoPhysical Sciences Division.Will my diploma indicate I completed the Master's in Applied Data Science Program Online?No, your diploma willnotinclude 'Online' in the name of your degree.

If I am a student in the In-Person Master's in Applied Data Science Program, may I take courses in the Online Program? Conversely, if I am a student in the Online Program, may I take courses in the In-Person program?Currently, students may only take Master's in Applied Data Science courses in the modality in which they are officially enrolled.

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Do I need to be a US citizen or permanent resident to apply to Master's in Applied Data Science Online Program?No, students do not have to be US citizen or resident to partake in theOnline Program. Please note that theOnline Programisnoteligible for visa sponsorship.

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How will enrolling in Master's in Applied Data Science Online Program impact my schedule? Are classes held synchronously, asynchronously, or both?Classes generally take place on evenings and weekends in order to allow our students and instructors to maintain their professional schedules. The Master's in Applied Data ScienceOnline Programis both synchronous and asynchronous. The same as ourIn-Personprogram, students are required to participate in weekly, live meetings with their instructors and peers, complete readings and coursework, and engage in discussion.

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Is the Master's in Applied Data Science Online program equally academically rigorous as the In-Person program?Yes. TheOnline Programcurriculum is overseen by the same faculty curriculum committee as the In-Person program. Both programs are jointly reviewed and are held to the same high standards. Additionally, both programs are granted by the University of ChicagoPhysical Sciences Division.

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Will my diploma indicate I completed the Master's in Applied Data Science Program Online?No, your diploma willnotinclude 'Online' in the name of your degree.

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MBA/MSHow do I apply to the MBA/MS joint degree program?Applicants interested in the Joint MBA/MS degree will apply throughBooth's centralized, joint-application process. Applicants should complete the Chicago Booth Full-Time MBAapplicationand select the MBA/MS in Applied Data Science as their program of interest. An MBA/MS program supplement will be available for completion within your Booth application. The supplement contains Applied Data Science specific questions that will be reviewed by the Applied Data Science admissions team along with your full Booth application. For complete consideration, applicants should complete the MBA application and the joint degree program supplement in the same application round prior to submitting the application.What courses will I take in the MBA/MS program?As a student in thejoint-degree MBA and Applied Data Science program, you'll take the equivalent of 23 100-unit courses:14 MBA classes9 data science coursesLeadership Effectiveness and Development (LEAD)Qualified Work Experience, a noncredit professional internship experienceYour Booth courses will be in person, while your MS courses will be online. Most students will earn both degrees in seven quarters—the same time it takes to earn the MBA.Will MBA/MS courses be in-person or online?Your Booth courses will be in person, while your MS courses will be online. Most students will earn both degrees in seven quarters—the same time it takes to earn the MBA. A combination of online and in-person courses gives you flexibility in course scheduling, and you'll earn two degrees in the time it would take to complete the MBA alone.Are standardized tests required for admission?As part of the online application, candidates will be

required to submit a GMAT or GRE score for the joint program. International applicants may be required to submit proof of English language proficiency by submitting a TOEFL iBT or IELTS test score. The minimum TOEFL iBT score required for admission is 104; the minimum IELTS score required is 7. Proof of English proficiency may be waived under certain criteria noted by UChicago GRAD Admissions.What are the main differences in programs and outcomes between the MBA/MS in Applied Data Science compared to Computer Science?The fields of Statistics, Mathematics, and Computer Science intersect with industry domains in different ways. TheMPCSprogram focuses on the center of Computer Science, including Software Engineering, High Performance Computing, Data Analytics, and Application Development. The MS-ADS Program focuses at the intersection of multiple fields, such as Computer Science, Mathematics, and Statistics (including Statistical Inference, Linear/Non-Linear Models, Machine Learning, Natural Language Processing, and Deep Learning). The outcomes for MPCS students include Software Engineer (Developer), Senior Software Engineering Management, Software/Hardware Architect, and Senior Cyber Security Engineer. The outcomes for students in MS-ADS include roles as Data Scientist (most common), Senior Data Science Consultant, Business Intelligence (BI) Director, Data Visualization Manager, Data Analytics Engineer, and AI Solution Architect.

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Page: https://datascience.uchicago.edu/education/mprograms/ms-in-applied-data-science/tuition-fees-aid/ (https://datascience.uchicago.edu/education/rprograms/ms-in-applied-data-science/tuition-fees-aid/)

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Tuition and course fees displayed are for Summer 2024, Autumn 2024, Winter 2025, and Spring 2025. Visit theOffice of the University Bursar websitefor information on quarterly and occasional fees, as well as information about tuition rates.

Tuition for the MS in Applied Data Science program: $5,967 per course/$71,604 total tuition**

Program Enrollment Deposit (non-refundable): $1,500 (credited toward your first quarter's tuition balance)

- Enrolling in a program of study includes additional costs beyond the tuition listed here. For a full list of direct and indirect expenses associated with the cost of attendance, please visit theCost of Attendancepage of the Graduate Financial Aid Office website.

Note: Tuition is expected to increase 3-7% per year.

** The program awards merit-based scholarships.

Career Seminar (required unless eligible to waive): $0

Introduction to Statistical Concepts (optional): $0

R Foundational Course (optional): $0

Python Foundational Course (optional): $0

Advanced Linear Algebra for Machine Learning (optional): $0

The Data Science Institute Scholarship, MS in Applied Data Science Alumni Scholarship

The MS in Applied Data Science program offers partial tuition scholarships to top applicants. These scholarships do not require a separate application but it is recommended that candidates submit their applications ahead of the early deadline to maximize their chances of securing a scholarship.

Other Scholarships

Students are encouraged to investigate scholarships offered through various civic and professional organizations, foundations and state agencies. One place to search for scholarships is thefinancial aid information web pagesponsored by the National Association of Student Aid Administration.

Financial Aid

Merit scholarships are available for eligible applicants. Once you apply to the program, you will be automatically considered for a scholarship. Early applications are highly encouraged.

In addition, if you are interested in financial aid to help finance your graduate education, once admitted, you will work with the University of Chicago's Student Loan Administration office.

To understand the types of financial assistance available and to gather additional information, please visit theGraduate Aid page. For international student funding options, please visit theInternational Student Funding Options page.

To find out if you are eligible for federal loans, please visit ourAid Eligibility page. We have administrative systems in place to assist students in applying for financial aid upon admission to programs. Please visit our Tuition, Financing, and Billing page for more information.

For information and assistance with employer tuition benefits, please visit thewebsite of the Bursar.

If you are interested in financial aid through student employment, please visit theStudent Employment website.

Visit ourFAQpage for additional information.

Start Your Application

TheIn-Personand theOnlineprogram admit full- and part-time students for entrance in autumn quarter.

Page: https://datascience.uchicago.edu/education/mprograms/ms-in-applied-data-science/faculty-instructors-staff/ (https://datascience.uchicago.edu/education/rprograms/ms-in-applied-data-science/faculty-instructors-staff/)

Not sure what you're looking for? Head for thehome page.

Know what you want? Search our site by entering keywords below…

Page: https://datascience.uchicago.edu/education/m

programs/ms-in-applied-data-science/overview/ (https://datascience.uchicago.edu/education/programs/ms-in-applied-data-science/overview/)

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Page: https://datascience.uchicago.edu/education/programs/ms-in-applied-data-science/how-to-apply/ (https://datascience.uchicago.edu/education/programs/ms-in-applied-data-science/how-to-apply/)

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Theapplication portalfor entrance in Autumn 2025 is now open! Check out our blog posthereon tips for applying to the program.

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Only completed applications are sent for committee review.

Next Application Deadlines:

In-Person:

May 6, 2025 – Third Priority Application Deadline

June 23, 2025 – Final Application Deadline

Online:

Autumn 2025June 23, 2025 – Final Application Deadline

*Theapplication portalmay close early if the cohort is filled.

Letters of Recommendation

The MS in Applied Data Science program requires two letters of recommendation. Westrongly recommendthat at least one letter is written by someone such as a direct manager/supervisor or internship supervisor who can attest to skills you demonstrated or gained though a professional workplace experience (e.g., leadership, teamwork, collaboration, initiative, management, other).

Note: Letters of recommendation can be uploaded after you submit your application. Recommended sources for letters of recommendation include: professors; supervisors or managers; professional mentors.

We do not accept letters of recommendation from family members, friends, or peers.

Candidate Statement

The candidate statement is a key part of your application. The admissions committee pays careful attention to how you understand and present your aims and qualifications. The application will include a prompt with detailed instructions on the information the program is looking for in your candidate statement.

Best practices to keep in mind as you write:

Do not restate your resume.

Your statement should not exceed 1,000 words.

Resume/CV

The Master's in Applied Data Science admissions committee will review your resume. We encourage you to take the time to carefully update the resume you submit to us.

Important to Include:

Work experience, including internships and part-time positions in the analytics/data science space

Major accomplishments and awards

Educational background, including areas of study

Professional conferences attended

Not needed:

Undergraduate or graduate GPA

Programming Supplement

Yourapplicationcontains a section on programming skills. Although applicants with limited skills in R or Python can and do get accepted into the program, the admissions committee values prior programming experience. Include a PDF ofno more than two pagesdemonstrating current programming language skills.

Examples include a PDF submission of work completed in R or Python. The programming supplement must be shared as a PDF file. We are looking for the following in your code (see below). Please note your code does not need to contain all of the below.

Ingest data from csv

Manage different data types

Use your function for data analysis

Visualize data

Wrangle data

Write your own function

Import libraries

Virtual Portfolio

The MS in Applied Data Science requires short, recorded videos to a given prompt(s) within the application. These short videos give applicants an alternative means to outline why they are a strong fit for the MS in Applied Data Science program.

One video prompt response is required; the other is optional. Each video should be approximately 1:30 minutes in length.

International Students

The in-person, full-time program only intakes students for the Autumn start.

Only the full-time, in-person program is visa-eligible.

International students are also welcome to apply to our Master's in Applied Data Science Online program, which does not require citizenship or permanent resident status and does not provide visa sponsorship.

English Language Requirement

Applicants to the Master's in Applied Data Science program who do not meet the English Language Proficiency criteria must submit proof of English language proficiency.

Minimum scores for the Master's in Applied Data Science program: TOEFL, 102 (no subscore requirement); IELTS, 7 (no subscore requirement).

Please review our waiver policyhere.

Transcripts from all previous colleges and universities attended

When applying to the program, only yourunofficialtranscripts are required. If you are admitted into the program, then official transcripts must be sent to the following (note a bachelor's degree is required to apply to the program):

Please have your institution send your e-transcripts directly to:

applieddatascience-admissions@uchicago.edu.

Ifyour institution cannot send your documents electronically, please have them send your transcripts to the following mailing address.

Please note, if documents are being mailed, we must receive them in their original, school-sealed envelope. If your documents are not received in a school-sealed envelope, they will be considered unofficial. Additionally, if your transcript does not list degree conferral information (degree earned and date of conferral), we will also need to receive an attested copy of your degree certificate.

The University of ChicagoAttention: MS in Applied Data Science Admissions455 N Cityfront Plaza Dr., Suite 950Chicago, Illinois 60611

Application Fee

There is a $90 non-refundable application fee. For questions regarding an application fee waiver, please refer to thePhysical Sciences Division fee waiver policy.

The program awards merit-based scholarships. Read more aboutTuition, Fees, & Aid.

Meet your Admissions Counselor

Patrick VoneshSenior Assistant Director of Enrollment Management

Patrick Vonesh supports prospective students throughout the admissions process for the Online Master of Science in Applied Data Science program.

Learn more about Patrick

Start My AppSchedule an Appointment

Jose AlvaradoAssociate Director of Enrollment Management

Jose Alvarado supports prospective students throughout the admissions process for the In-Person Master of Science in Applied Data Science program.

Learn more about Jose

Get in Touch

Before we get back to you, please check to see if your question has already been answered on ourFAQs page.

Apply Today

The application for entrance in Autumn 2025 is open!