

LEVERAGE BIG DATA

WASC | Senior College and University Commission

 University of San Diego®
SHILEY-MARCOS
SCHOOL OF ENGINEERING

MASTER OF SCIENCE IN APPLIED DATA SCIENCE



ABOUT UNIVERSITY OF SAN DIEGO

The University of San Diego, established over 70 years ago, is home to over 9,000 students. Its diverse and vibrant student community comes from 85 countries and 50 states in the USA. We are proud to offer a suite of online programs in engineering and tech to Indian students. With this unique opportunity, you can earn a technical degree from a U.S. without having to leave home and without sacrificing quality.

The institution holds the distinction of being one of the youngest private universities to feature in U.S. News and World Report's top 100 universities in the USA. Moreover, the University has achieved accolades for its online programs. The University has also been ranked #1 for having the most beautiful campus and #22 for providing the best career services by the Princeton Review.



PROGRAM OVERVIEW

At a Glance

The Master of Science in Applied Data Science (MS-ADS) program offered by USD Online for students in India is designed to equip graduates with comprehensive data literacy, relevant programming skills, and critical thinking abilities essential for success in the in-demand field of data science. This is a unique opportunity to earn a U.S. degree with the flexibility of learning from home and from expert, Indian faculty members.

Students build a strong base of programming skills in languages including Python, R, SQL, and AWS learned through project-based subjects. Ideal for those both new to data science and with experience in the field, the program includes unique foundational subjects to prepare all students for our rigorous curriculum. In their final semester students will apply their data science knowledge to a capstone project in collaboration with peers, instructors and potential industry partners in order to have real-world experience prior to graduating.

 Online

Program Length: 24 Months

Total Credits: 30-36

Quick Facts

Students have the opportunity to enroll in any of the three semesters: Spring, Summer, or Fall. Each semester holds two subjects lasting seven weeks each, allowing students to concentrate on one subject at a time.

Top 100

Universities in the
Country
U.S. News & World Report

#2

Most Beautiful
Campus
Princeton Review

#54

Best Value
Schools
Princeton Review





WHAT WILL YOU LEARN?

This program enables data science graduates to apply critical business decision-making skills to fields including health care, marketing, media, financial services, government aerospace, and hospitality. At the end of the program, graduates will be able to:

- Analyze datasets with data science tools and programming abilities.
- Execute data-driven projects leveraging statistical thinking and critical thinking skills, as well as presentation ability.
- Drive data-led business strategies with AI, machine learning, and predictive modeling.
- Understand the various regulatory requirements for protecting data based on ethics.



PROGRAM EXPECTATIONS

As postgraduate students at a top-tier US university, a rigorous curriculum, independent research, critical thinking and a high level of accountability are to be expected out of all of our programs. Students should expect and prepare for the following:

- 15-18 hours per week on average to commit to studying and completing assignments. This may vary by the student's personal background and the content of the weekly syllabus.
- Complete work independently on their schedule supplemented by the resources available in the online classroom.
- Look externally to find supplemental information to help them complete assignments and understand course content.



WHY CHOOSE USD ONLINE?



Equivalent Value and Same Curriculum as On-campus Degree

Online graduate students earn the same degree as campus-based students. The online mode provides students with the same industry-driven curriculum and academic rigor as the University of San Diego's on-campus degree programs.



Cutting Edge Tech-focused Curriculum

Join this opportunity to earn a tech degree from a U.S. university. Our innovative, practical curriculum introduces the latest concepts and trends from the global tech landscape, aligning it with industry requirements.



Attend Graduation Ceremony on Campus

All online students have the opportunity to attend their graduation ceremony at their own expense. Visit our state-of-the-art, historical California campus and join the excitement and celebrations alongside other USD graduates.



Exceptional Career Services

Our career development center is here to help guide you through job and internship applications. With mock interview preparation, resume-building tools and career guidance, our advisors and our online tools will help you unlock your dream career.



Unlock Your Career Potential with Handshake

As a USD student, you will have access to Handshake - a popular job platform specifically designed with students in mind. Use Handshake to connect directly with top employers or internships in your field with the guidance of our career development center.



Unmatched Learning Support and Technology

Access a comprehensive set of tools and resources round the clock to tailor your learning experience. Utilize Canvas for coursework, engage with faculty via Zoom, access the USD library, and receive dedicated support from academic advisors. Benefit from collaboration opportunities with Google Suite and Microsoft Office 365 as a USD student.



WHY STUDY A MASTER OF SCIENCE IN APPLIED DATA SCIENCE?

Potential Careers

Businesses have increasingly been generating and using data in making critical business decisions across diverse domains like marketing, finance, and manufacturing. This has led to a surge in demand for data scientists with advanced skills in uncovering valuable insights from this data. Graduates of our program will be able to apply for roles such as:

- Data Scientist
- Data Analyst
- Data Engineer
- Machine Learning Engineer
- Business Analyst
- Business Intelligence Developer
- Financial Analyst
- Database Administrator
- Data Architect
- Statistician

Industry Insights

#3

Ranking for data science among the best technology professions worldwide.

25%

Expected annual growth rate of the data analysis market in India from 2021-30

INR 2.5-6.5 Million

Annual earning potential as a data scientist with 3-5 years of experience in India.

Sources: U.S. News & World Report 2022, India Today, E.T. HR World

Where MS-ADS Graduates Work

SAMSUNG

NORTHROP GRUMMAN



U.S. AIR FORCE

UCLA Health

accenture

IBM

Lawrence Livermore National Laboratory

LIONSGATE

SANDAG



University of San Diego

ONLINE



ALUMNI BENEFITS AT THE UNIVERSITY OF SAN DIEGO

At the University of San Diego, our commitment to alumni extends well beyond graduation. Explore the following diverse benefits designed to foster continuous connection, active engagement, and unwavering support within the esteemed Torero community.

- **Stay Updated with Monthly eNewsletter:**

Receive our vibrant monthly eNewsletter, keeping you in the loop with the latest happenings, alumni stories, and upcoming events.

- **Connect Anytime with the Torrero Network**

Explore our dynamic alumni website, your go-to-hub for staying connected, accessing resources, and discovering opportunities within the USD community.

- **Local Torrero Clubs for Community Building:**

Build or join local Torrero clubs to connect with alumni in your area, fostering a sense of community and shared Torero pride.

- **Networking Made Easy on Alumni Portal:**

Engage in meaningful networking within our alumni portal; connecting with fellow alumni to share experiences, insights, and career opportunities.

- **Virtual Events for Continued Learning:**

Attend our virtual events, including the ongoing personal finance series addressing navigating inflation. Stay informed, inspired, and connected from the comfort of your home.

- **Alumni Member Card Upon Graduation:**

Upon graduation, sign up to receive your Alumni Member Card, unlocking exclusive privileges and access to various benefits on-campus and local benefits.

- **Explore Job Opportunities on Handshake:**

Sign up for Handshake, our job listing platform, to explore a myriad of career opportunities tailored for USD alumni.

- **T.E.A.M. for Networking and Mentorship:**

Join T.E.A.M., our exclusive private social networking site, to find mentors, explore job listings, share expertise, and make valuable connections within the USD community.

- **Access Online Library Resources:**

Enjoy continued access to certain online library resources, supporting your intellectual curiosity and lifelong learning.

- **Discount on Professional Development Courses:**

Benefit from a 25% discount on select professional development courses and continuing education courses, enhancing your skills and advancing your career.





ADMISSIONS AND ELIGIBILITY

Admissions

Admissions are processed on a rolling basis in August, December and April. To see more information on start dates, please visit our website.

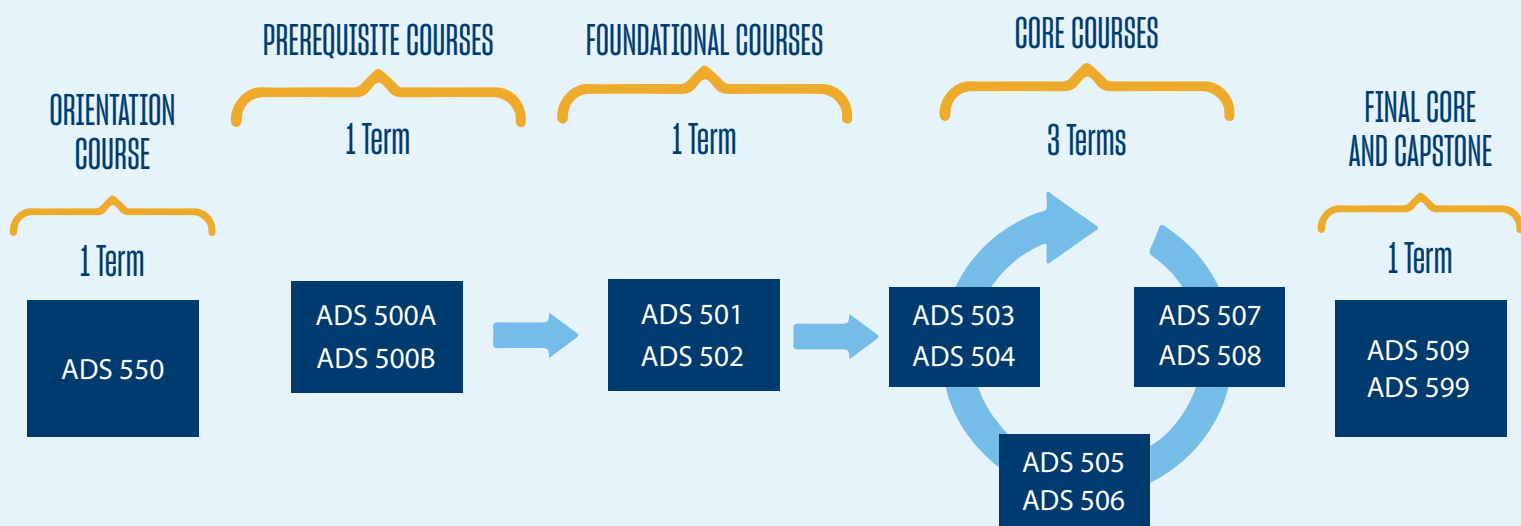
Eligibility

- Must not be a resident of the U.S.
 - Must be proficient in English.
 - Must submit an Aadhaar card or PAN card.
 - Must hold an undergraduate degree:
 - 4-year undergraduate degree holders must have their degree issued from an accredited university (NAAC, UGC or AICTE) and earned a designation of Second Division or higher (45% or above).
 - 3- year undergraduate degree holders must have their degree issued from a NAAC accredited university with a letter grade of A or higher and earned a designation of First Division (60% or above).
 - **Proof of English proficiency if necessary***
 - *Applicants are required to provide evidence of English language proficiency to be considered for admission and can prove eligibility as follows:
 - Successful completion of an undergraduate degree with the medium of instruction in English. Evidence must be provided on the marksheet/transcript or student must provide a medium of instruction letter from the university.
- OR
- If the medium of instruction for the undergraduate degree is not English, student must submit evidence of completing an approved English language proficiency test. Score requirements listed below:

TEST NAME	SCORE REQUIRED
IELTS Academic	7.0
TOEFL iBT	83
Duolingo English Test	120



CURRICULUM



ORIENTATION COURSE

ADS 550 - New Student Orientation

Besides introducing students to the University of San Diego, the orientation course provides vital information about the MS-ADS program and all the technologies they will learn as part of the program.

During the course, students will learn to navigate the learning environment and successfully locate helpful resources. Students can use this course as a reference tool throughout the program tenure.

PREREQUISITE COURSES

ADS 500A - Probability and Statistics for Data Science

This course introduces students to concepts of probability and statistics and their application to solving real-world problems. It offers a solid foundation for learning advanced data science methods covering Statistical concepts, probability theory, random and multivariate variables, data and sampling distributions, descriptive statistics, and hypothesis testing. Moreover, practical computer-based applications are integrated.

During the course, students learn numerical and graphical descriptions of data, elements of probability, sampling distributions, probability distribution functions, estimation of population parameters, and hypothesis tests. This course will combine the learnings from texts, case studies, and standard organizational processes with practical problem-solving skills for the real-life workplace.

ADS 500B - Data Science Programming

In this course, students are introduced to both the fundamental concepts of programming as well as problem-solving techniques for data science. The course covers a wide range of topics, from the basics of Python and R to data acquisition and integration. Likewise, transformation, problem understanding, data preparation, standardization, and exploratory data analysis are key topics in this course.

Moreover, the students get an opportunity to explore command-line tools and methods to access and analyze RDBMS databases. The course culminates in a productive mode with an introduction to machine learning.

FOUNDATIONAL COURSES

ADS 501 - Foundations of Data Science and Data Ethics

This course provides an introductory overview of the techniques, ideas, and ethical considerations that are applied within the professional data science field.

The curriculum covers subjects such as managing the business, the CRISP-DM and Agile methodologies, ensuring the science in data science using the scientific method, project management, addressing ethical concerns and model bias, and the importance of performing exploratory data analysis.

ADS 502 - Applied Data Mining

Data Mining, a key topic in the field of data science, explains the theoretical concepts and practical algorithms governing both supervised and unsupervised learning methods.

In the course, students learn data mining principles, methods, and applications with various integrated theoretical and practical examples in classification, association analysis, cluster analysis, and anomaly detection. Moreover, this course includes the application of each topic in data mining using R and Python programming languages.

CORE COURSES

ADS 503 - Applied Predictive Modeling

This particular course offers practical insights into applied predictive modeling. Students will become familiar with the process of model training, assessment, and development, spanning diverse applications relevant to real-world challenges.

The topics covered include linear and non-linear regression modeling methods, linear and non-linear classification modeling methods, model selection, variable importance, variable selection, model application code, and R package management using RStudio.

ADS 504 - Machine Learning and Deep Learning for Data Science

This course delves into studying supervised and unsupervised algorithms in the Machine Learning context. Emphasis is placed on formulating, choosing, applying, implementing, and evaluating machine learning models to capture critical patterns exhibited in cross-sectional and longitudinal data.



This course also focuses on the considerations of model complexity interpretations and implementation in real-world applications using Python and associated packages. It also gives an introductory overview of Deep Learning.

ADS 505 - Applied Data Science for Business

During this course, students deep dive into real-world use cases of data mining applications, including predicting consumer purchase behavior, brand loyalty, product prices, sales up-lift, basis of purchase, direct marketing campaign cost-effectiveness, rideshare cancellations, competitive online auctions, recommendation engines, and segmenting and identifying important customers.

This course covers practical examples and use cases associated with each topic in data mining using Python. Data visualization, effective data storytelling, and analytical communication are also taught. Students get a deep understanding of Tableau, one of the most popular business analytics and dashboard tools.

ADS 506 - Applied Time Series Analysis

Numerous datasets inherently incorporate a time series element: records collected over time, financial data, biological data signals such as blood glucose levels, weather, and seasonal information. It is imperative for aspiring data scientists to be able to discern instances of time series data and to determine the application of techniques.

This course will cover key topics in time series analysis and forecasting (prediction), including stationary and non-stationary models, autoregressive and integrated autoregressive models, models for estimation, and spectral analysis using R. Different methods of assessment will be leveraged, including maximum likelihood, Bayesian, and spectral estimation. These approaches will be applied to real-world datasets, culminating in a complete analysis from end to end.

ADS 507 - Practical Data Engineering

This course is designed to provide students with comprehensive knowledge about the field of data engineering. Students will be introduced to the roles of data engineers, as well as the synergy between data engineering and the larger domain of data science.

The curriculum will encompass various focal points, including data architecture, relational databases, SQL, data pipelines (both ETL and ELT), ethical engineering, and best practices in data engineering.

ADS 508 - Data Science with Cloud Computing

The course covers the principles of cloud computing and its impact on data science. The major topics include cloud economics, distributed storage, the SageMaker ecosystem, distributed processing, refining models, processing natural language, and deployment of models in a cloud environment.

This course integrates theoretical insights from texts and pertinent technical articles with hands-on experience to enable the execution and recommendation of solutions for real-world business challenges following a structured model development process.

FINAL CORE AND CAPSTONE

ADS 509 - Applied Text Mining

Students are taught natural language processing and data mining of text using Python. The course includes diverse topics such as collecting and preparing text data, linguistic feature engineering, comparisons of text groups, building classification models, sentiment analysis, topic modeling, and an introduction to vector-based representations of text.

ADS 599 - Capstone Project

While executing the Capstone Project, students apply their acquired theoretical knowledge from the Applied Data Science Program to a research-based, code-oriented data science project.

During the project, students lead the entirety of the end-to-end process that involves the collection and processing of the data while utilizing the appropriate analytical methods.

The project and its results will be documented in an academic journal-style article and orally presented, including technical content, in a recorded presentation. Students will work in teams and are encouraged to find project topics that originate from real-world domains.



UNIVERSITY ACCREDITATION

WASC

**Senior College and
University Commission**

DEGREE CERTIFICATE

University of San Diego

To all to whom these Letters shall come, Greetings
The Trustees of the University on the recommendation of the Faculty
and by virtue of the Authority in Them vested have conferred on

SAMPLE STUBENT

the Degree of

Master of Science

Applied Data Science

with all the Rights, Privileges and Honors thereunto appertaining.

Given at San Diego, in the State of California, this thirtieth day of June,
in the Year of our Lord, two thousand and twenty-three.

Jan K. Adams
President



Chris A. Robst
Dean, School of Engineering

* USD's degree programs are validated by the U.S. Regional Accrediting body (WASC) and recognized in the U.S. by the U.S. Department of Education. These degree programs do not have official recognition by Ministries of Education outside the United States.





 University of San Diego | **ONLINE**

APPLY NOW

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University Commission

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