

UNIVERSITY
OF MIAMI



Master of Science in

DATA SCIENCE

BIG DATA, BIG FUTURE

THE UNIVERSITY OF MIAMI'S MASTER OF SCIENCE IN DATA SCIENCE allows students to apply data science techniques to a variety of interests. The program has statistics and machine learning at its core, allowing students to learn practical techniques in data science, explore solutions to domain-specific problems, and experience real-world data science applications through internships.

“The sexiest job of the 21st century.”

— HARVARD BUSINESS REVIEW



DATA SCIENCE

Curriculum

UM's MSDS program provides interdisciplinary data applications for students from any undergraduate background.

While selecting a track is not required, students may choose from the following options:

Technical Data Science

For students with a quantitative background who wish to expand their educational experiences and career preparations in statistics, machine learning, programming, data engineering, and database systems.

Data Visualization

For students who wish to study the graphical representation of the trends and patterns found in data through charts, graphs, maps, and diagrams.

Smart Cities

For students interested in exploring the convergence of technology, urban informatics, and design, in the shaping of responsive and resilient cities.

Marine & Atmospheric Science

For students who wish to apply data science training to tackle problems in the atmosphere, including ocean modeling, climate modeling, and remote sensing.

Educational Measurement & Statistics

For students who wish to pursue independent research, test design and development, and the analysis of large sums of quantitative data.

Marketing

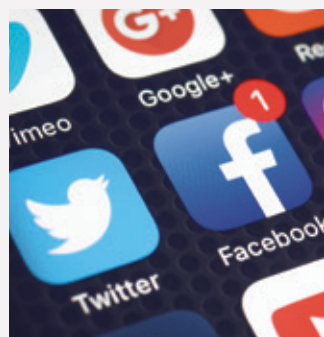
For students who wish to pursue careers in strategic branding, predictive analytics, market research, and consumer behavior. (The Marketing track requires 31 credits)



Data Science *for all Disciplines*

Data scientists are in high demand. Large companies need talented individuals who can not only perform various data analysis techniques, but are also able to interpret the results by drawing on their domain knowledge. The University of Miami's **Master of Science in Data Science** (MSDS) is designed to teach students how to unlock the hidden values in big data in any setting in order to garner strategic insights and achieve results.

Founded on computer science, mathematics, statistics, and data visualization techniques, the MSDS Program is unique in that it adds deep content knowledge to specialized applications, such as communications, smart cities design, atmospheric sciences, psychometrics, and digital marketing. The result is a truly interdisciplinary approach, ensuring that graduates are able to take up the role of data scientist in any organization.



ACADEMIC **ADVISORY BOARD**

COLLEGE OF ARTS & SCIENCES

Mitsunori Ogihara, Ph.D.

(Tokyo Institute of Technology, Japan)
theories of computation, music
information retrieval, data mining,
and digital humanities.

MIAMI HERBERT BUSINESS SCHOOL

Joseph Johnson, Ph.D.

(University of Southern California)
marketing analytics, strategic brand
management, deep learning algorithms
for advertising design and testing,
dynamic optimization methods.

SCHOOL OF COMMUNICATION

Alberto Cairo, Ph.D.

(Universitat Oberta de Catalunya, Spain)
infographics, data visualization, and
visual journalism.

SCHOOL OF ARCHITECTURE

Rudolphe el-Khoury, Ph.D.

(Princeton University)
applications for information
technology, enhanced
responsiveness and sustainability
in buildings and smart cities.

ROSENSTIEL SCHOOL OF MARINE, ATMOSPHERIC, & EARTH SCIENCE

Benjamin Kirtman, Ph.D.

(University of Maryland—College Park)
climate modeling and predictability,
dynamic meteorology, environmental
hazards, and atmospheric
thermodynamics.

SCHOOL OF EDUCATION & HUMAN DEVELOPMENT

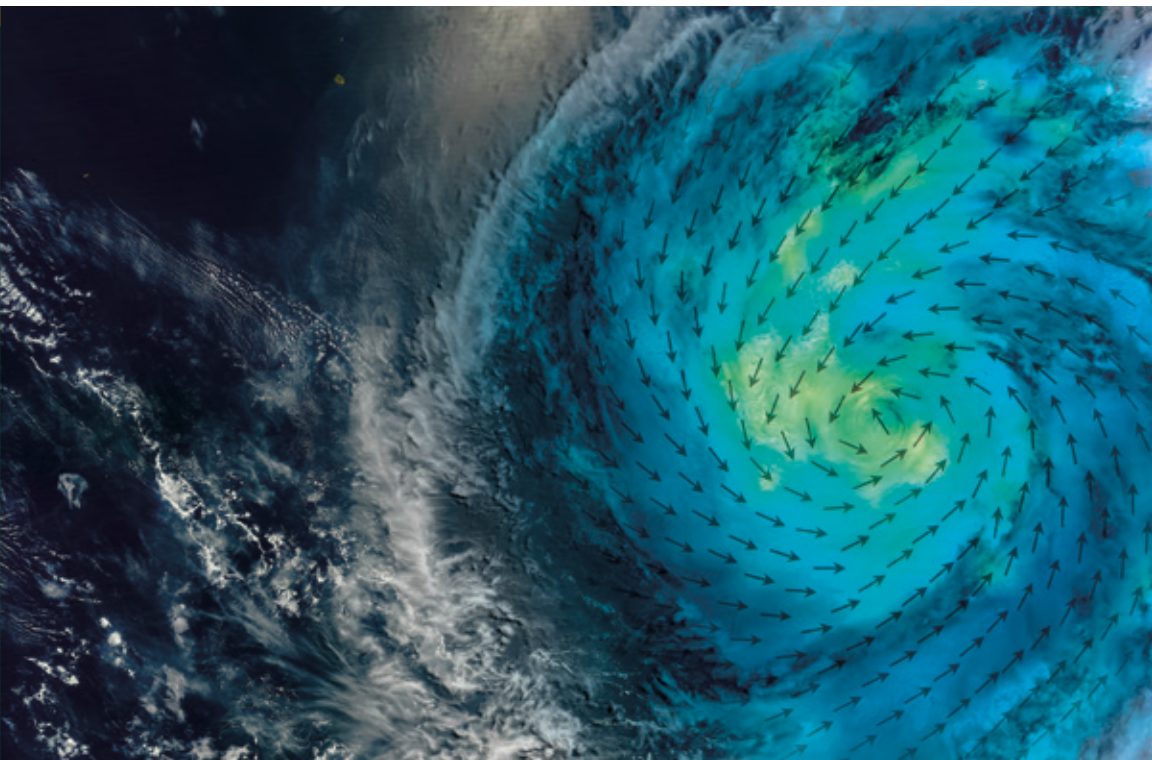
Soyeon Ahn, Ph.D.

(Michigan State University)
data issues in meta-analysis,
hierarchical linear modeling (HLM)
and structural equation modeling
(SEM) for educational
and psychological research.

INSTITUTE FOR DATA SCIENCE AND COMPUTING

Nick Tsinoremas, Ph.D.

(University of Leeds, U.K.)
informatics, digital health, clinical
genomics, computational biology,
and drug discovery.





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CREDITS
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**NO GRE
REQUIRED**

**MSDS students have
completed internships with
the following organizations:**

- >> Royal Caribbean Cruise Lines
- >> Baptist Health South Florida
- >> The Walt Disney Company
- >> Learning One to One
- >> Office Depot
- >> Sequoya Analytics
- >> TUZ Ventures
- >> Eikon Digital
- >> Precision Ecology
- >> City of Coral Gables

Internships

The MSDS program provides exclusive experiential learning opportunities and industrial connections for our students, both in program and post-graduation, with the cooperation of the Institute for Data Science and Computing (IDSC). In addition, UM's Toppel Career Center provides career education and advising for all students.

INSTITUTE FOR DATA SCIENCE AND COMPUTING

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The Institute for Data Science and Computing supports nationally and internationally recognized research programs, focusing on those of an interdisciplinary nature, and actively engages in research to solve the complex technological problems of modern society. IDSC provides a framework for promoting collaborative and multidisciplinary activities across the University and beyond, establishing excellence in the fundamental, as well as applied, aspects of computational science. IDSC is integral in UM's data science activities, including the annual Smart Cities and Data Intersections conferences, as well as being home to the Pegasus and Triton Supercomputers.

IBM Skills Academy Digital Badges

The IBM Skills Academy provides students with industry recognized credentials in data science, artificial intelligence, cyber security, and the Internet of Things (IoT), giving MSDS students an advantage in today's competitive job market.

Courses are offered by IBM-certified instructors, using hands-on labs and learning tools created by IBM Subject Matter Experts and IBM Global University Programs.



DATA SCIENCE FAST FACTS



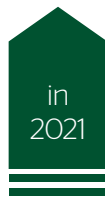
UM GRADUATE
STUDENTS
COME FROM

87

DIFFERENT
COUNTRIES

SOUTH FLORIDA SAW
AN INCREASE IN DATA
SCIENCE JOBS OF

30%



88% OF ALL DATA
SCIENTISTS



have at least a
Master's degree

MIAMI RANKS #1 FOR
START-UP ACTIVITY

in the United States

ACCORDING TO THE KAUFMAN INDEX

MIAMI IS #3 IN TOP
EMERGING TECH HUBS

in the United States

ACCORDING TO MASHABLE



ABOUT

11.5
MILLION



data science jobs will be
created in the next 5 years

ACCORDING TO U.S. BUREAU OF LABOR STATISTICS



Industry Outlook

According to the United States Bureau of Labor Statistics, employment for data and information research scientists is expected to rise **19 percent** by the year **2026**, which is much faster than the average for all other professions. Additionally, digital marketing positions have increased **63 percent** in the last year.

Median Incomes

Data Scientist: \$149,800

Applications Architect: \$134,520

Infrastructure Architect: \$126,353

Psychometric Analyst: \$83,400

Marketing Manager: \$99,916

Data Engineer: \$151,307

Machine Learning Engineer: \$114,826

Statistician/Actuary: \$93,589

PARTICIPATING SCHOOLS AND COLLEGES

- College of Arts & Sciences
- College of Engineering
- School of Architecture
- School of Communication
- School of Education & Human Development
- Rosenstiel School of Marine, Atmospheric, & Earth Science
- Miami Herbert Business School

Scan here to learn more



UNIVERSITY OF MIAMI
**COLLEGE of
ARTS & SCIENCES**



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