

# DATA SCIENCE (M.S.)

## Requirements

### Degree Requirements

The master's program in Data Science requires 30 credits of coursework (10 classes), which will typically be completed in one to two years. Classes are offered in the evenings and during weekends. Please consult the Admissions Requirements page for more information about applying to the program.

Course	Title	Credits
<b>Five Core Courses (see below)</b>		<b>15</b>
<b>Four elective (4) courses from one or more of the following of eight (8) thematic clusters</b>		<b>12</b>
Computer and Data Science		
Cybersecurity		
Bioinformatics and Health Informatics		
Financial Informatics		
Urban and City Informatics		
Election and Government Informatics		
Behavior Informatics		
Media Informatics		
<b>One of the following options:</b>		<b>3</b>
CISC 6080	Capstone Project in Data Science	
CISC 6085 & CISC 6086	Master's Thesis in Data Science I and Master's Thesis in Data Science II <sup>1</sup>	
CISC 6081	Data Science Practicum (internship)	
<b>Total Credits</b>		<b>30</b>

<sup>1</sup> Students completing two semesters of thesis (6 credits) may complete one fewer 3-credit elective.

### Data Science Core Courses

Five courses are required from the list below. Courses on this list have the DATI attribute code.

Course	Title	Credits
CISC 5450	Mathematics for Data Science	3
CISC 5500	Data Analytics Tools and Scripting	3
CISC 5790	Data Mining	3
CISC 5800	Machine Learning	3
CISC 5835	Algorithms for Data Science	3
CISC 5900	Information Fusion	3
CISC 5950	Big Data Computing	3

### Thematic Clusters

All courses that can apply to the M.S. in Data Science as electives have the DATA attribute code.

### AI and Data Science Courses

Course	Title	Credits
CISC 5550	Cloud Computing	3
CISC 5640	Nosql Database Systems	3
CISC 5700	Cognitive Computing	3
CISC 6000	Deep Learning	3
CISC 6210	Natural Language Processing	3
CISC 5325	Database	3
CISC 6525	Artificial Intelligence	3
CISC 6745	Data Visualization	3

### Cybersecurity courses

Course	Title	Credits
CISC 5009	Network Essentials	3
CISC 5650	Cybersecurity Essentials	3
CISC 5750	Information Security and Ethics	3
CISC 6640	Privacy and Security in Big Data	3
CISC 6650	Forensic Computing	3
CISC 6680	Intrusion Detection and Network Forensics	3
CISC 6880	Blockchain Technology	3

### Bioinformatics and Health Informatics courses

Course	Title	Credits
CISC 6500	Bioinformatics	3
CISC 6550	Systems Neuroscience	3
BISC 7502	Eukaryotic Molecular Biology	4

### Financial Informatics courses

Course	Title	Credits
CISC 5352	Machine Learning in Finance	3
CISC 6352	Advanced Computational Finance	3
ECON 6950	Financial Econometrics	3
ECON 6910	Applied Econometrics	3

### Urban and City Informatics courses

Course	Title	Credits
URST 5000	Issues in Urban Studies	3
URST 6200	Research Skills in Urban Studies	3
BISC 7529	Principles of Geographical Information Science	4

### Election and Government Informatics courses

Course	Title	Credits
POSC 5100	American Political Behavior	3
POSC 5130	Political Institutions and Processes	3
POSC 5251	Political Survey Research	3

### Behavior Informatics courses

Course	Title	Credits
PSYC 6850	Evaluation of Psychological and Social Programs	3
PSYC 7804	Regression with Lab	3

PSYC 7830	Structural Equation Modeling	3
PSYC 7920	Item Response Theory	3

### **Media Informatics courses**

<b>Course</b>	<b>Title</b>	<b>Credits</b>
PMMA 6103	Data Journalism and Interactive Graphics	3
PMMA 6205	Online Analytics and Metrics	3