

## Master of Science in Data Science and Analytics (MSDSA) – Business Concentration

*Minimum 30 Hours Required for Graduation*

### COMMON CORE COURSES (6 Credits) – CHOOSE 2

Intro to Data Science  
CAP 5768

Intro to Business Analytics  
& Big Data  
ISM 6404

### ADDITIONAL CORE COURSE (3 Credits) -- CHOOSE 1

Biostatistics  
STA 5195

Data Mining & Machine Learning  
CAP 6673

Special Topics  
(Quantitative Methods)  
POS 6934

### BUSINESS CONCENTRATION COURSES (12 Credits) -- CHOOSE 4

Quantitative Communication  
Research  
COM 6316

Data Mining &  
Predictive Analytics  
ISM 6136

Database Management  
ISM 6217

Advanced  
Business Analytics  
ISM 6405

Social Media &  
Web Analytics  
ISM 6555

Data Management & Analysis  
with Excel  
QMB 6303

Data Analysis for Managers  
QMB 6603

### ELECTIVE COURSES (9 Credits) -- CHOOSE 3

Take three elective courses from the Electives Table on Page 2.  
Thesis option requires only one elective course and 6 thesis credits.

**ELECTIVES TABLE (9 Credits) -- CHOOSE 3**

|   |          |  |           |
|---|----------|--|-----------|
| <b>Business Analytics</b>                         |          | <b>Data Security and Privacy</b>                     |           |
| Data Mining and Predictive Analytics              | ISM 6136 | Computer Data Security                               | CIS 6370  |
| Database Management Systems                       | ISM 6217 | Cyber Security: Measurement and Data Analysis        | CTS 6319  |
| Introduction to Business Analytics and Big Data   | ISM 6404 | Management of Information Assurance and Security     | ISM 6328  |
| Advanced Business Analytics                       | ISM 6405 | Introduction to Cryptology and Information Security  | MAD 5474  |
| Social Media and Web Analytics                    | ISM 6555 | Cryptanalysis  | MAD 6478  |
| Data Management and Analysis with Excel           | QMB 6303 | Quantum Mechanics 2                                  | PHY 6646  |
| Data Analysis for Managers                        | QMB 6603 | <b>Scientific Applications and Modeling</b>          |           |
| <b>Database and Cloud Computing</b>               |          | Photogrammetry and Aerial Photography Interpretation | GIS 6028C |
| Multiprocessor Architecture                       | CDA 6132 | LiDAR Remote Sensing and Applications                | GIS 6032C |
| Cloud Computing                                   | CEN 5086 | Web GIS  | GIS 6061C |
| New Directions in Database Systems                | COP 6726 | Geospatial Databases                                 | GIS 6112C |
| Theory and Implementation of Database Systems     | COP 6731 | Hyperspectral Remote Sensing                         | GIS 6127  |
| Database Management Systems                       | ISM 6217 | Spatial Data Analysis                                | GIS 6306  |
| <b>Data Mining and Machine Learning</b>           |          | Special Topics (Quantum Information Processing)      | PHY 6938  |
| Introduction to Neural Networks                   | CAP 5615 | Computational Physics                                | PHZ 5156  |
| Social Networks and Big Data Analytics            | CAP 6315 | Numerical Relativity                                 | PHZ 7609  |
| Data Mining for Bioinformatics                    | CAP 6546 | <b>Social Data Science</b>                           |           |
| Machine Learning for Computer Vision              | CAP 6618 | Advanced Anthropological Research 1                  | ANG 6090  |
| Deep Learning                                     | CAP 6619 | Advanced Anthropological Research 2                  | ANG 6092  |
| Reinforcement Learning                            | CAP 6629 | Quantitative Reasoning in Anthropological Research   | ANG 6486  |
| Artificial Intelligence                           | CAP 6635 | Social Networks and Big Data Analytics               | CAP 6315  |
| Data Mining and Machine Learning                  | CAP 6673 | Quantitative Communication Research                  | COM 6316  |
| Applied Machine Learning                          | CAP 6610 | Special Topics (Quantitative Methods)                | POS 6934  |
| Information Retrieval                             | CAP 6776 | Research Design in Political Science                 | POS 6736  |
| Web Mining  | CAP 6777 | Seminar in Advanced Research Methods                 | SYA 6305  |
| Advanced Data Mining and Machine Learning         | CAP 6778 | <b>Statistics and Data Applications</b>              |           |
| Big Data Analytics with Hadoop                    | CAP 6780 | Biomedical Data and Informatics                      | BSC 6459  |
| Computational Advertising and Real-Time Analytics | CAP 6807 | Biostatistics  | STA 5195  |
| Computer Performance Modeling                     | CEN 6405 | Statistical Computing                                | STA 6106  |
| Data Mining and Predictive Analytics              | ISM 6136 | Survival Analysis                                    | STA 6177  |
|   |          | Biostatistics - Longitudinal Data Analysis           | STA 6197  |
|   |          | Applied Statistical Methods                          | STA 6207  |
|   |          | Regression Analysis                                  | STA 6236  |
|   |          | Mathematical Statistics                              | STA 6326  |
|   |          | Applied Time Series Analysis                         | STA 6857  |
|   |          | Applied Computational Topology                       | MTG 6329  |