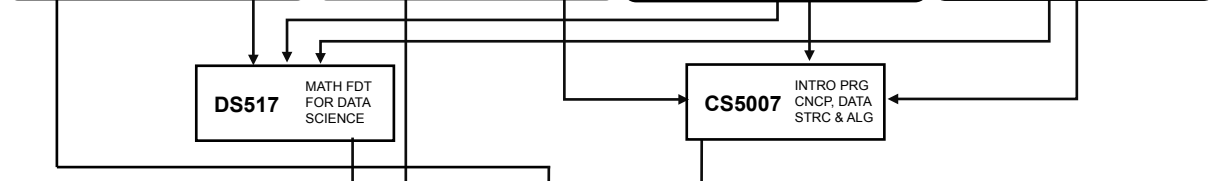


# Data Science Graduate Course Chart

Undergraduate Background



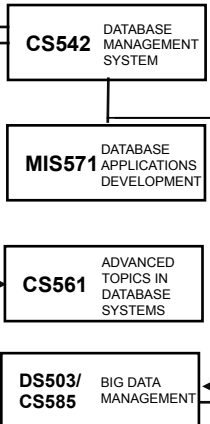
→  
Arrow indicates recommended background



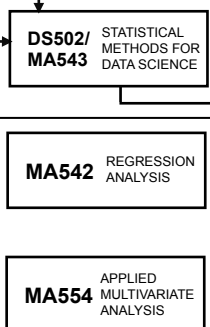
**Integrative Data Science**



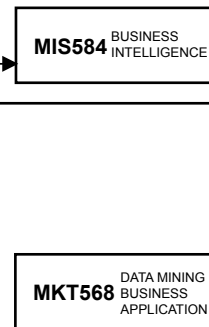
**Data Access and Management**



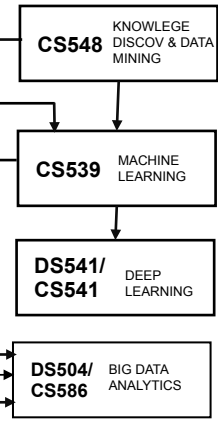
**Mathematical Analytics**



**Business Intelligence and Case Studies**



**Data Analytics and Mining**



**Core Courses**

5 courses required at least one from each category

Additional core courses are counted as electives

**Electives**

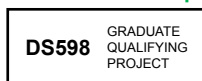
3 or 5 courses

- CS 5007. Introduction to Prog. Concepts, Data Structures and Algorithms
- CS 5084. Introduction to Algorithms: Design and Analysis
- CS 504. Analysis of Computations and Systems
- CS 509. Design of Software Systems
- CS 534. Artificial Intelligence
- CS 539. Machine Learning
- CS 542. Database Management Systems
- CS 561. Advanced Topics in Database Systems
- CS 548. Knowledge Discovery and Data Mining
- CS 584. Algorithms: Design and Analysis
- CS 585/DS 503. Big Data Management
- CS 586/DS 504. Big Data Analytics
- CS 573. Data Visualization
- CS 528. Mobile and Ubiquitous Computing
- CS 536. Programming Language Design
- CS 541/DS541. Deep Learning
- CS 545. Digital Image Processing
- CS 546. Human-Computer Interaction
- CS 549. Computer Vision
- CS 566. Graphical Models For Reasoning Under Uncertainty
- CS 565. User Modeling
- CS 567. Emp. Methods For Human-Cent. Computing
- MA 511. Applied Statistics For Eng. & Scientists
- MA 543/DS 502. Statistical Methods for Data Science
- MA 542. Regression Analysis
- MA 554. Applied Multivariate Analysis
- MA 552. Distribution-Free and Robust Statistical Methods
- MA 550. Time Series Analysis
- MA 529. Stochastic Processes
- MA 511. Applied Statistics for Engineers and Scientists
- MA 540. Probability and Mathematical Statistics I
- MA 541. Probability and Mathematical Statistics II
- MA 546. Design and Analysis of Experiments
- MA 547. Design and Analysis of Observational and Sampling Studies
- MA 549. Analysis of Lifetime Data
- MA 556. Applied Bayesian Statistics
- ACC 503 Financial Intelligence for Strategic Decision-Making
- BUS 500 Business Law, Ethics and Social Responsibility
- FIN 500 Financial Information and Management
- FIN 501 Economics for Managers
- MIS 500 Innovating with Information Systems
- MIS 571 Database Applications Development
- MIS 573 System Design and Development
- MIS 576 Project Management
- MIS 581 Information Technology Policy and Strategy
- MIS 583 User Experience Applications
- MIS 584 Business Intelligence
- MKT 568 Data Mining Business Applications
- OBC 500 Group and Interpersonal Dynamics in Complex Organizations
- OBC 501 Interpersonal and Leadership Skills
- OIE 500 Analyzing and Designing Operations to Create Value
- OIE 541 Operations Risk Management
- OIE 544 Supply Chain Analysis and Design
- OIE 552 Modeling and Optimizing Processes
- OIE 598 Optimization Methods for Business Analytics
- PSY 505. Advanced Methods and Analysis for the Learning and Social Sciences
- BCB 501. Bioinformatics
- BCB 502/CS 582. BioVisualization
- BCB 503/CS 583. Biological and Biomedical Database Mining
- BCB 504/MA 584. Statistical Methods in Genetics and Bioinformatics
- BME 595. Special Topics: Machine Learning for Biomedical Informatics
- ECE 502. Analysis of Probabilistic Signals And Systems
- ECE 503. Digital Signal Processing
- ECE 504. Analysis of Deterministic Signals And Systems
- ECE 578/ CS 578. Cryptography and Data Security
- ECE 630. Advanced Topics in Signal Processing
- ECE 673. Advanced Cryptography
- ECE 5311. Information Theory and Coding

Or, DS-relevant special topics course, ISP, or directed study course offered by DS Affiliated Faculty

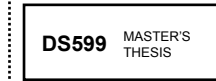
**Capstone**

5 elective courses required



OR

3 elective courses required



11 courses required

No more than 16 credits from Business School