# Data Science Course Catalog

## Core Classes

<table>
<thead>
<tr>
<th>Number</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>DASC 5300/CSE 5300</td>
<td>Foundation of Computing</td>
<td>3</td>
</tr>
<tr>
<td>DASC 5301/CSE 5332</td>
<td>Data Science</td>
<td>3</td>
</tr>
<tr>
<td>DASC 5302/IE 5317</td>
<td>Introduction to Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>DASC 5303/IE 5315</td>
<td>Data Science Project Management</td>
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Electives

- Any specialization course or other graduate course outside of Computer Science. No more than 3 in one department.
- DASC 5309 Data Science Capstone Project 3 credits

30 HOURS TOTAL

## Elective Classes

### Computer Science

<table>
<thead>
<tr>
<th>Number</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CSE 5330</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSE 5334</td>
<td>Data Mining</td>
<td>3</td>
</tr>
<tr>
<td>CSE 5335</td>
<td>Web Data Management</td>
<td>3</td>
</tr>
<tr>
<td>CSE 5360</td>
<td>Artificial Intelligence I</td>
<td>3</td>
</tr>
<tr>
<td>CSE 5367</td>
<td>Pattern Recognition</td>
<td>3</td>
</tr>
<tr>
<td>CSE 5368</td>
<td>Neural Networks</td>
<td>3</td>
</tr>
<tr>
<td>CSE 6332</td>
<td>Cloud Computing &amp; Big Data</td>
<td>3</td>
</tr>
<tr>
<td>CSE 6363</td>
<td>Machine Learning</td>
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</tr>
<tr>
<td>CSE 6367</td>
<td>Computer Vision</td>
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### Industrial Engineering

<table>
<thead>
<tr>
<th>Number</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>IE 5301</td>
<td>Intro to Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>IE 5303</td>
<td>Quality Systems</td>
<td>3</td>
</tr>
<tr>
<td>IE 5304</td>
<td>Advanced Engineering Economy</td>
<td>3</td>
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<tr>
<td>IE 5318</td>
<td>Applied Regression Analysis</td>
<td>3</td>
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<tr>
<td>IE 5322</td>
<td>Simulation and Optimization</td>
<td>3</td>
</tr>
<tr>
<td>IE 5323</td>
<td>Agent-Based Simulation</td>
<td>3</td>
</tr>
<tr>
<td>IE 5351</td>
<td>Intro to Systems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>IE 6308</td>
<td>Design of Experiments</td>
<td>3</td>
</tr>
<tr>
<td>IE 6318</td>
<td>Data Mining and Analytics</td>
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### Materials Science and Engineering

<table>
<thead>
<tr>
<th>Number</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MSE 5300</td>
<td>Intro to Materials Science &amp; Engineering</td>
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<tr>
<td>MSE 5350</td>
<td>Intro to Computational Material Science</td>
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### Geology

<table>
<thead>
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<th>Course Title</th>
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<tbody>
<tr>
<td>GEOL 5320</td>
<td>Understanding Geographic Info Systems</td>
<td>3</td>
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<tr>
<td>GEOL 5322</td>
<td>Global Positioning System</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 5323</td>
<td>Remote Sensing Fundamentals</td>
<td>3</td>
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### Electrical Engineering

<table>
<thead>
<tr>
<th>Number</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EE 5304</td>
<td>Cyber-Physical Systems</td>
<td>3</td>
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<tr>
<td>EE 5322</td>
<td>Intelligent Control Systems</td>
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<tr>
<td>EE 5325</td>
<td>Robotics</td>
<td>3</td>
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<td>EE 5350</td>
<td>Digital Signal Processing</td>
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<tr>
<td>EE 5352</td>
<td>Statistical Signal Processing</td>
<td>3</td>
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<tr>
<td>EE 5353</td>
<td>Neural Network and Deep Learning</td>
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<tr>
<td>EE 5354</td>
<td>Machine Learning</td>
<td>3</td>
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<tr>
<td>EE 5364</td>
<td>Information Theory for Data Science</td>
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<tr>
<td>EE 6353</td>
<td>Convex Optimization</td>
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### Mathematics

<table>
<thead>
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<th>Course Title</th>
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<tbody>
<tr>
<td>MATH 5314</td>
<td>Experimental Design</td>
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<tr>
<td>MATH 5353</td>
<td>Applied Linear Models</td>
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<tr>
<td>MATH 5358</td>
<td>Regression Analysis</td>
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<tr>
<td>MATH 6310</td>
<td>Foundation of Data Sciences</td>
<td>3</td>
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<tr>
<td>MATH 6311</td>
<td>Optimization of Big Data</td>
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### Biology

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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>BIOL 5340</td>
<td>Bioinformatics</td>
<td>3</td>
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<tr>
<td>BIOL 5361</td>
<td>Advanced Biometry</td>
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<tr>
<td>BIOL 5362</td>
<td>Experimental Design</td>
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### Psychology

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<th>Course Title</th>
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<tbody>
<tr>
<td>PSYC 5407</td>
<td>Experimental Design</td>
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<td>PSYC 6349</td>
<td>Psychometric Theory</td>
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<tr>
<td>PSYC 6355</td>
<td>Multivariate Analysis</td>
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### Capstone Project (Pick One)

<table>
<thead>
<tr>
<th>Number</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>DASC 5309</td>
<td>Capstone Project</td>
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<tr>
<td>DASC 5391</td>
<td>Internship</td>
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