INFORMATION SYSTEMS, MS DATA SCIENCE SPECIALIZATION

This specialization provides technical and leadership training required for key positions in information technology, data science and analytics. It provides an understanding of how to work in professional roles in today’s data-intensive and data-driven world. It reviews key technologies in analytics and business intelligence drawing from both traditional statistics and machine learning.

Students must take at least 50% of their courses in MSIS.

Curriculum
Core Courses (3 units)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>MSDS 430-DL</td>
<td>Python for Data Analysis</td>
</tr>
<tr>
<td>CIS 417-DL</td>
<td>Database Systems Design &amp; Implementation</td>
</tr>
<tr>
<td>CIS 498-DL</td>
<td>Information Systems Project</td>
</tr>
<tr>
<td>or CIS 590-DL</td>
<td>Capstone Research</td>
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Specialization Courses (8 units)

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<tr>
<td>CIS 435-DL</td>
<td>Practical Data Science Using Machine Learning</td>
</tr>
<tr>
<td>MSDS 400-DL</td>
<td>Math For Data Scientists</td>
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<tr>
<td>MSDS 401-DL</td>
<td>Applied Statistics with R</td>
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<td>Any two of the following</td>
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<tr>
<td>MSDS 455-DL</td>
<td>Data Visualization</td>
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<tr>
<td>MSDS 458-DL</td>
<td>Artificial Intelligence and Deep Learning</td>
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<tr>
<td>MSDS 459-DL</td>
<td>Knowledge Engineering</td>
</tr>
<tr>
<td>MSDS 460-DL</td>
<td>Decision Analytics</td>
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<tr>
<td>Any three electives</td>
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<tr>
<td>CIS 419-DL</td>
<td>Web Application Development</td>
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<tr>
<td>CIS 431-DL</td>
<td>Database Administration</td>
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<tr>
<td>CIS 436-DL</td>
<td>Big Data Management and Analytics</td>
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<tr>
<td>CIS 452-DL</td>
<td>Fundamentals of Network Security</td>
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<tr>
<td>CIS 453-DL</td>
<td>Advanced Cyber Security</td>
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<tr>
<td>CIS 455-DL</td>
<td>Disaster Recovery and Continuity</td>
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<tr>
<td>CIS 457-DL</td>
<td>Management of Information Security</td>
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<tr>
<td>CIS 459-DL</td>
<td>Innovation with Blockchain Technology</td>
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<tr>
<td>CIS 460-DL</td>
<td>Information Technology Management</td>
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<tr>
<td>CIS 465-DL</td>
<td>Information Technology Strategy</td>
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<tr>
<td>CIS 494-DL</td>
<td>Project Management Concepts</td>
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<tr>
<td>CIS 495-DL</td>
<td>IT Project Management</td>
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<tr>
<td>CIS 496-DL</td>
<td>Information Technology Business Writing and Communication</td>
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<tr>
<td>CIS 497-DL</td>
<td>Information Technology Finance</td>
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</tbody>
</table>

About the Final Project

Students may pursue their capstone experience independently or as part of a team. As their final course, students take either the individual research project in an independent study format or the classroom final project class in which students integrate the knowledge they have gained in the core curriculum in a project presented by the instructor. In both cases, students are guided by faculty in exploring the body of knowledge on information systems while contributing research of practical value to the field. The capstone independent project and capstone class project count as one unit of credit.

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