### University of Illinois at Urbana-Champaign
#### Professional MCS-DS Degree Program Requirements
##### Student Planning Worksheet

**Name:**

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**Must maintain an overall 3.0 GPA**

Degree must be completed within 5 years

**Complete 32 Credit Hours**

<table>
<thead>
<tr>
<th>Breadth Requirement (12-16 hrs) - Total Credit Hours Completed</th>
<th>Advanced Coursework (12 hrs) - Total Credit Hours Completed</th>
<th>Additional Coursework (4-8 hrs) - Total Credit Hours Completed</th>
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**Total Credit Hours Completed**

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**BREADTH REQUIREMENTS: 12-16 credit hours**

*Must complete at least one course from each area with a grade of B- or higher.* (Accompanying MOOC courses are listed within parenthesis after the High-Engagement course title)

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<th>COMMENTS</th>
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#### Artificial Intelligence
- CS 441 (formerly CS 498) Applied Machine Learning
- CS 445 Computational Photography
- CS 447 Natural Language Processing
- CS 598 Deep Learning for Healthcare [Recommended prereq: CS 441]*

#### Database and Information Systems: Data Mining
- CS 410 Text Information Systems
- CS 411 Database Systems
- CS 412 Intro to Data Mining (Pattern Discovery + Cluster Analysis)

#### Interactive Computing (HCI/Graphics)
- CS 416 (formerly CS 498) Data Visualization (Data Visualization)
- CS 519 Scientific Visualization [Recommended prereq: CS 416 or CS 418]*

#### Systems & Networking: Cloud Computing
- CS 425 Distributed Systems (Cloud Computing Concepts: Parts 1 & 2)
- CS 435 (formerly CS 498) Cloud Networking
- CS 437 (formerly CS 498) Internet of Things
- CS 498 Cloud Computing Applications (Cloud Computing Applications: Parts 1 & 2)

**Total Credit Hours from Breadth Coursework - 12-16 credit hours**

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**ADVANCED COURSEWORK: 12 credit hours (Any three courses from the list below; Grades must be C or higher)**

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#### 500-LEVEL Courses (500-590 or 598)
- CS 519 Scientific Visualization [Recommended prereq: CS 416 or CS 418]*
- CS 598 Advanced Bayesian Modeling
- CS 598 Practical Statistical Learning [Required prereq: CS 410, CS 412, an Artificial Intelligence breadth course, or STAT 420]
- CS 598 Deep Learning for Healthcare [Recommended prereq: CS 441]*
- CS 513 Theory & Practice of Data Cleaning (Theory & Practice of Data Cleaning)
- CS 598 Foundations of Data Curation (Foundations of Data Curation)
- CS 598 Cloud Computing Capstone [Required prereqs: CS 498 Cloud Computing Applications and one other Cloud Computing breadth course]

**Total Credit Hours from Advanced Coursework - 12-16 credit hours**

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**ADDITIONAL COURSEWORK: 4-8 hours (Any course from the list below; Grade must be C or higher)**

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#### HCI / Graphics
- CS 519 Scientific Visualization [Recommended prereq: CS 416 or CS 418]*
- CS 598 Advanced Bayesian Modeling

#### Statistical Analysis
- CS 598 Practical Statistical Learning [Required prereq: CS 410, CS 412, an Artificial Intelligence breadth course, or STAT 420]

#### Machine Learning
- CS 598 Deep Learning for Healthcare [Recommended prereq: CS 441]*
- CS 519 Scientific Visualization [Recommended prereq: CS 416 or CS 418]*

#### Information Science
- CS 513 Theory & Practice of Data Cleaning (Theory & Practice of Data Cleaning)
- CS 598 Foundations of Data Curation (Foundations of Data Curation)

#### Capstone Courses
- CS 598 Data Mining Capstone [Required prereqs: CS 410 and CS 412]
- CS 598 Cloud Computing Capstone [Required prereqs: CS 498 Cloud Computing Applications and one other Cloud Computing breadth course]

**Total Credit Hours from Advanced Coursework - 12-16 credit hours**

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* If CS 519 or CS 598 DLH is applied toward both the breadth and advanced coursework requirements, then 8 hours of "Additional Coursework" is required.