

# Doctor of Philosophy in Data Science & Analytics

Updated 9/8/2020 by 8267

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|---|----------------------|---|--|
|   | Admission to Program | 3 |  |
| MATH 8020: Graph Theory                                 | Admission to Program | 3 |  |
| MATH 8030: Applied Discrete & Combinatorial Mathematics | Admission to Program | 3 |  |
| Data Analysts   |                      |   |  |
| STAT 8240: Data Mining I                                | Admission to Program |   |  |

## Computer Science Concentration

Students interested in pursuing a concentration in Computer Science must take at least 15 credit hours in CS courses 8000 or 9000 levels (except CS 9900).

| Course Number/Title  | Prerequisite                  | Credits |  |
|--|-------------------------------|---------|--|
| CS 8025: Advanced Operating Systems                            | Admission to Program          | 3       |  |
| CS 8027: Advanced Networking & Architecture                    | Admission to Program          | 3       |  |
| CS 8041: Advanced Theory of Computation                        | Admission to Program          | 3       |  |
| CS 8045: Advanced Design and Analysis of Algorithms            | Admission to Program          | 3       |  |
| CS 8050: Principles of Software Design & Programming Languages | Admission to Program          | 3       |  |
| CS 8125 Advanced Cloud Computing                               | Admission to program          | 3       |  |
| CS 8172 Advanced Parallel and Distributed Computing            | CS 8025 (may take concurrent) | 3       |  |
| CS 8253 Advanced Graph Algorithms                              | CS 8045 (may take concurrent) | 3       |  |
| CS 8260 Advanced Database Systems and Applications             | Admission to program          | 3       |  |
| CS 8263 Advanced Information Retrieval                         | CS 8045 (may take concurrent) | 3       |  |
| CS 8265: Advanced Big Data Analytics                           | Admission to program          | 3       |  |
| CS 8267: Advanced Machine Learning                             | Admission to program          | 3       |  |
| CS 8347 Advanced Natural Language Processing                   | CS 8041 (may take concurrent) | 3       |  |
| CS 8357 Advanced Neural Networks and Deep Learning             | CS 8045 (may take concurrent) | 3       |  |
| CS 8367 Advanced Computer Vision                               | CS 8045 (may take concurrent) | 3       |  |
| CS 8375 Advanced Artificial Intelligence                       | CS 8045 (may take concurrent) | 3       |  |
| CS 8540 Advanced Network Security                              | CS 8027 (may take concurrent) | 3       |  |
| CS 8545 Advanced AI for Security and Privacy                   | CS 8045 (may take concurrent) | 3       |  |
| CS 8990 Advanced Special Topics in Computer Science            | Depends on topic              | 3       |  |
| CS 8992 Advanced Directed Studies                              | Admission to program          | 1-3     |  |
| CS 8998 Advanced Research in Computer Science                  | Varies                        | 1-3     |  |

## Statistics Concentration

Students interested in pursuing a concentration in Statistics must take at least 15 credit hours in STAT courses at 8000 or 9000 levels.

| Course Number/Title                           | Prerequisite          | Credits |  |
|---|-----------------------|---------|--|
| STAT 8220: Time Series Forecasting            | STAT 7020 & STAT 7210 | 3       |  |
| STAT 8320: Applied Multivariate Data Analysis | STAT 7220 & STAT 7210 | 3       |  |
| STAT 8330: Applied Binary Classification      | STAT 7210             | 3       |  |
| STAT 8350 Structural Equation Modeling        | Admission to Program  | 3       |  |
| STAT 8450: Multilevel Statistical Modeling    | Admission to Program  | 3       |  |