

# MS in Data Science and Analytics with Emphasis in High Performance Computing

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In addition to the core program objectives (<http://catalog.missouri.edu/graduateschool/datascienceanalytics/ms-data-science-analytics/>), graduates of the Master of Science in Data Science and Analytics who pursue the High Performance Computing (HPC) emphasis area will achieve the following educational objectives, in addition to the core program objectives while becoming immersed in Big Data computational ecosystems.

- Students will have an in depth understanding of the state-of-the-art technologies which enable big data analytics and high performance computing; such that they can successfully investigate the data and analytical needs, then guide the decision making process on deployments into HPC infrastructure.
- Students will acquire knowledge to exploit cloud-based computing infrastructure, including virtualization, distributed architectures, on-demand resource scaling, container technology, and other cloud-based computing concepts in support of Big Data management, processing, and analytics.
- Students will have a thorough understanding of advanced technologies and techniques in Big Data analytics, which facilitate the extraction of new data intelligence using state-of-the-art, leading analytical platforms.
- Students will gain a solid understanding of techniques for exploiting advanced co--processing hardware, including graphics processing units (GPU) and many-core units (e.g., Intel Phi) to achieve cost effective, massively parallel data analytics.

## Degree Requirements

Students will need to complete the core program objectives (<http://catalog.missouri.edu/graduateschool/datascienceanalytics/ms-data-science-analytics/>) in addition to the emphasis area electives below.

## Emphasis Area Electives

DATA_SCI 8410	Data Mining and Information Retrieval	3
DATA_SCI 8430	Parallel Computing for Data Analytics	3
DATA_SCI 8420	Cloud Computing for Data Analytics	3

Note: Not all electives are offered each academic year.