Data Science and Engineering – Systems Engineering, MS   2020-2021

College of Engineering

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The Systems Engineering Concentration in the MS in Data Science and Engineering is a focused course-only one-year graduate program designed for students who seek to use computing and data science and engineering to solve systems-engineering problems involving big data, extensive computations, and complex modeling, simulation, optimization and visualization.

The mission of the Department of Computational Data Science and Engineering is to graduate professionals who (a) have expertise in developing novel computational and data science methodologies and products, and/or (b) have extended their expertise in specific disciplines (in science, technology, engineering, and socioeconomics) with data science and engineering tools.

Research in Data Science and Engineering includes: big data and computational statistics, AI and Machine Learning, internet of things, large and complex systems, intelligent transportation and infrastructure systems, remote sensing, autonomous vehicles, virtual and augmented reality, e-commerce, image and video processing, scientific and interactive visualization, high-performance computing, scalable algorithms, bioinformatics, and multi-scale multi-physics engineering systems.

Additional Admission Requirements

- An approved Bachelor of Science or Engineering degree with a minimum GPA of 3.00/4.00 is required. A working knowledge of statistics, matrices, or linear algebra, and experience in programming are desirable

Program Outcomes:

- Graduates shall demonstrate expertise, critical thinking and the ability to conduct research and development in scalable computing, computational methods, artificial and computational intelligence, complex system modeling and simulation, and data science and engineering.
- Graduates shall have mastery of communicating, planning, and implementing solutions and research and development products in systems engineering including the use of advanced visualization and analytics techniques.
- Graduates shall develop skills and abilities to practice in and conduct significant research and development projects in a systems-engineering context.

Degree Requirements

Total credit hours: 30

- Core courses (12 credits): CSE 620, 704, 708, 817
- Systems Engineering Core (9 credit hours): SYEN 605, 710, 715
- Systems Engineering Electives: Take 9 credit hours from: BMEN 695, COMP 722, CSE 805, 806, ECEN 674, ISEN 658