Applied Data Science

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Demand for skills in data analysis, data science, data visualization, and machine learning now requires professionals in many disciplines to be data literate, and prepared with the knowledge and skills to understand and use foundational data science and data analytics methods and results. The multidisciplinary Applied Data Science minor addresses this demand with emphasis on hands-on application of foundational data science methods and appropriate use of the results for decision making.

Students wishing to pursue the minor must obtain the approval of the School Director and complete each of the required courses with a grade of C or higher.

Goals:

The goals of the minor are to:

- Develop in students broad competency and reasonable depth with fundamental applied data science knowledge, skills, and abilities.
- Provide students considerable exposure to hands-on application of foundational data science and data analytic methods, and
- Develop in students the ability to appropriately use the results of data science and data analytic methods for decision making

Outcomes:

Upon graduation successful students will competently demonstrate:

- Ability to analyze and address real-world problems, accounting for problem requirements and constraints
- Correct and appropriate implementation approaches to addressing real-world problems through use of Python code
- Basic understanding and competence in paradigms such as functional and sequential programming
- Basic mastery of the different development environments needed for data science.
- Use of data containers (e.g. "data frames") for data collection, manipulation, formulation, summarization, visualization, and analytics to address problems or answer questions of focal interest to their discipline
- Use of Python programming and packages (such as NetworkX and Pandas) plus contemporary data-science algorithms to effect text retrieval, data mining, analyses, and data visualization, to derive insightful analytic results pertinent to a complex real-world problem
- Ability to summarize results from any of the above in a scholarly written format such as would be appropriate for a journal or conference publication.

Careers for this Minor:

Data literacy and analysis, and decision-making, are critical and applicable across all disciplines and sectors. This includes but is not limited to future professionals in business, healthcare, architecture, engineering, computer science, cybersecurity, criminal justice, mathematics, and more.

Minor

Applied Data Science Minor – Curriculum 2021-2022 Catalog

Approval of the School Director is required to declare this minor. Upper-level courses may have course prerequisites.

All courses must be a grade of C or higher.

CS 142	Introduction to Python Programming	3
CS 280	Introduction to Data Science	3
CS 290	Contemporary Data Visualization	3
CS 305	Advanced Data Science	3
CS 315	Intro to Data & Web Mining	3
CS 437	Machine Learning & Artificial Intelligence	3
Total Cr.		**18**