PROPOSED PROGRAM SUMMARY

Institution: Western Kentucky University
Program Name: Data Science
Degree Destination: Bachelor of Science

CIP Code: 30.7001
Credit Hours: 120
Implementation Date: 8/19/2024

Program Description

The Data Science program will equip students with a comprehensive understanding of the interdisciplinary field of data science. This program will merge computer science, statistics, and data analytics to harness the power of data for informed decision-making and innovative problem-solving. Through a combination of theoretical coursework, hands-on projects, and real-world applications, graduates of this program will have the skills necessary to excel in the rapidly evolving landscape of data-driven industries.

As opposed to typical data science programs that are housed in statistics and computer science departments, this program spans a variety of fields. Students will graduate with skills in multiple computer programming languages, various database languages, cloud computing, data wrangling, statistics, econometrics, and calculus and linear algebra. These fundamental skills will be coupled with domain knowledge from various disciplines – the students will have to complete at least one certificate or a minor that complements their degree in data science. Graduates of the program may go directly into the workforce or pursue graduate studies in fields such as economics, operations management, and computer science.

As a result of this program, graduates will be able to:
- Develop a solid foundation in programming, database management, statistical analysis, and machine learning techniques.
- Manipulate, gather, clean, transform, and analyze diverse datasets.
- Create compelling visualizations succinctly representing complex data-driven insights.
- Communicate findings and implications effectively with both technical and non-technical audiences.
- Develop proficiencies in popular tools and technologies used in the field, such as Python, R, SQL, and SAS.

A unique aspect of this program is that it is highly customizable. To complement the Data Science degree, students will also be required to complete at least one certificate or minor in an associated field of the student's choosing (Applied Data Analytics, Applied Statistics, Economic Data Analytics, Geographic Information Systems Mapping, Health Informatics, or Emergency Management Disaster Science).

Connection to Other Programs

Although this will be the first program in the state that is classified in CIP 30.7001 (Data Science, General), there are other data science-related programs in the state. However, the strong student and employment demand, as well as curricular differences, demonstrate the potential viability of this program.

Data scientists occupy a variety of jobs, some of which require in-depth knowledge of a specific field, such as natural language processing or artificial intelligence. Another, and possibly larger segment of data science professionals, requires individuals to be "jacks-of-all-trades" because their jobs include creating and maintaining databases, developing workflows for data collection and analysis, developing ad-hoc analyses for specific problems, fine-tuning algorithms that have been put in production, and many

other data-related tasks. These kinds of jobs rely on individuals having a wide variety of skills, and that is what WKU's proposed program is designed to address.

Student Demand
Initial estimates of enrollment are:
Year 1 – 25
Year 2 – 45
Year 3 – 68
Year 4 – 91
Year 5 – 115

Employment Demand
This new major is expected to broaden career prospects for more graduates of Western Kentucky University. The number of jobs in this field is projected to grow by 35% over the next decade, according to the Bureau of Labor Statistics. As of 2022, the median salary for data scientists is $103,500 per year. With the increasing availability of broadband internet in Kentucky and with expanded acceptance of remote work (particularly true in the field of data science), this degree will offer Kentucky residents opportunities to hold high-paying jobs without having to leave the state.

Budget
Western Kentucky University is leveraging the skills of its existing faculty, which will facilitate offering this program in a cost-effective manner. Currently, there is a significant amount of expertise across various existing disciplines, which facilitates offering the program almost exclusively with existing resources.

Projected Revenue over Next Five Years ($):	$ 1,292,268
Projected Expenses over Next Five Years ($):	$ 175,354